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SEPTEMBER 1941

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In buying meters, keep in mind that all LPG meters are not alike. EMCO Special Butane-Propane Vapor Meters are especially designed for this service. They are rugged, with cast iron outer cases to provide the utmost in safety. Accuracy is an inbuilt characteristic that protects both buyer and seller alike.

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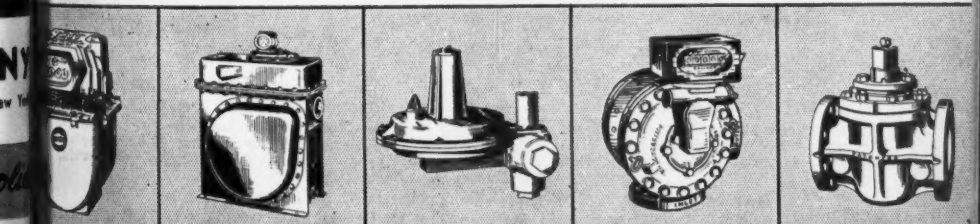

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EMCO Large Capacity Pressed Steel Gas Meter

EMCO Type "T" Ejector Service Regulator

PITTSBURGH ROTOCYCLE Meter for Liquid Butane or Propane

NORDSTROM Lubricated Valve

BUTANE-PROPANE *News*

Reg. U. S. Pat. Off.

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Publication Office: **LOS ANGELES, 1709 West Eighth Street, DRexel 4337.**
Branches: **DALLAS, 3645 Haynie Ave., Ph. Justin 8-1764; CLEVELAND, 2232 Adeline St., Lakewood, Cleveland, BOulevard 5711; CHICAGO, 1064 Peoples Gas Bldg., HARrison 6634.**

JAY JENKINS, President and General Manager; **CRAIG ESPY,** Vice President; **JAMES R. JENKINS,** Secretary-Treasurer; **ARTHUR ROHMAN,** Editor; **LYNN C. DENNY,** Managing Editor; **ELLIOTT TAYLOR,** Eastern Editor; **PAUL LADY,** Assistant Editor; **GLENN ROYER,** Cleveland Manager; **W. G. RUSSELL,** Field Representative.

September, 1941. Volume 3. Number 9. BUTANE-PROPANE *News* is published monthly.

Copyright 1941, by Western Business Papers, Inc., at 1709 West Eighth Street, Los Angeles, Calif.

Subscription price: United States, Mexico and Central American countries (in advance) 25 cents the copy, one year for $1.50, three years for $2.50; all other countries, $3.00 per year. Entered as second-class matter May 29, 1939, at the post office at Los Angeles, California, under the Act of March 3, 1879.

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Publishers: G A S, The *Natural* Gas Magazine; **HANDBOOK BUTANE-PROPANE GASES**

THE SKYS, America's future aces are receiving ir primary flight training in the world-famous n PT-21 Military Training Planes as part of a ense program that will make this country's air s the mightiest, most formidable in the world! the ground, the Ryan Aeronautical Company's nt answers the call of the U. S. Army Air Force the U. S. Navy for more and more training planes with an out production schedule that brook no interruption. And an G standby plant, engineered installed by Parkhill-Wade, s assure continuity of that pro- tion by guarding against any rruption due to failure of the ural gas supply!

PG *is* playing an important t in the National Defense Pro- m! In factories, LPG plays its e not only as standby assuring tinuity of production, but as a duction fuel firing heat treatment furnaces, for metal cutting, etc. On farms, America's accelerated agricultural production keeps pace with LPG-fueled combines, tractors and other farm machinery doing farm jobs more efficiently and more economically. On the highways, LPG-fueled trucks roll day and night from farms to population centers conserving the nation's gasoline supply. In army training centers, beyond the reach of gas mains, LPG provides fuel for cooking, space heating, water heating and refrigeration.

To these applications of LPG in the National Defense Program, Parkhill-Wade turns the full of its experience in pioneering such utilizations to the end that each installation is soundly engineered, quality installed and speedily completed. Inquiries concerning the application of LPG to *your* problem are solicited.

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MEASURE
Automatically
RECORDED

THIS Tokheim LPG pump does much m
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type measuring unit. It automatically
records of transactions and total gallonag
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operators the finest modern equipment, bac
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GENERAL PRODUCTS DEPARTMENT

FORT WAYNE INDIANA

LETTERS

Gentlemen:

I read with interest your editorial telegram in BUTANE-PROPANE *News* regarding British manufacturers advertising their products for delivery, war or no war. You refer in this article to *The Gas Times*, a London publication. Do you know where a subscription to this publication can be entered?

TAYLOR G. NELSON

Sales Department
The Titan Valve and Manufacturing Co.
Cleveland, Ohio

The address of THE GAS TIMES *is 121 Victoria St., London, S. W. 1, England.—Ed.*

●

Gentlemen:

I am interested in heating my house here in Montana. We pay $6.25 per ton for coal and 7 cents for stove fuel. Including coal and stove fuel it costs me $60 to heat for one year. How much more would it cost me to heat with butane with an underground plant, and a cost of 10 cents a gal.?

A. R.

Montana

It is difficult to give a direct comparison of heating costs without knowing the type of equipment being used, the quality of the coal, and the amount of oil and coal used. Compared with 7-cent stove fuel, the costs for cooking, water heating and space heating with efficient appliances, using 10-cent butane, will be very favorable.—Ed.

●

Gentlemen:

Our town is going to install one or more water pumps to pump the water for the city water department. The wells are located about a mile and a half from town, necessitating the building of a line out there if electric motors are to be used. We have read in the BUTANE-PROPANE *News* about some communities using butane engines for pumping water. However, we fail to find any advertising in the *News* on this phase. We are very anxious to know if there are such pumps and full particulars on the operation, cost of operation, dependability, etc.

H. W. M.

Kansas

Most assuredly, butane is suitable for this activity. It is very widely used in irrigation projects and many similar water pumping jobs. Practically any gasoline engine can be converted to burn butane. This operation requires special equipment, and we refer you to advertisers in BUTANE-PROPANE *News who manufacture butane carburetors and make pumps that we can recommend. Installation of equipment for pumping water is usually an engineering job because it depends upon the head and volume needed and other engineering factors. While possibly the original installation for butane would cost you more than an ordinary electrical hook-up, when it is considered that you have a mile and a half of electric line to run, the chances are that you would not be out any more money by installing a butane engine. Thereafter your costs would be much less.—Ed.*

●

Gentlemen:

If you have the information will you please advise us how the installation of butane gas in underground systems affects fire insurance rates when installations are made in accordance with NBFU Pamphlet No. 58.

I. R. M.

Washington

Regarding the effect of underground installations upon fire insurance rates, we feel that you should go directly to your fire insurance company as there is a variation of rates charged by different companies in different locations.

Naturally, if your installations conform strictly to Pamphlet No. 58 of the National Board of Fire Underwriters (85 John St., New York City), you have placed yourself in the best possible position to secure the lowest rates.—Ed.

●

Gentlemen:

The Government will shortly build an incinerator to take care of garbage at one of its housing projects and we would like to know if it would be practical and economical to burn butane gas as a fuel.

The City of Charleston operates an incinerator using fuel oil at a cost of about 7 cents per gal. and we would like to know whether butane gas could be used at a cost of 9½ cents per gal. Of course we know that the cost per B.t.u. would be less on oil but we have no data as to the efficiency of the two fuels for this use.

F. P. P.

South Carolina

With fuel oil selling at 7 cents per gal. and butane selling at 9½ cents per gal., this undertaking would be classed as a borderline job—one where there is not a great deal to choose from either way. While, ordinarily, the cheap-

est possible fuel is the most economical for an incinerator plant, butane would offer greater convenience. The butane gas burner would be simpler in construction, easier to light and service, and would cost less than an oil burner.

We suggest, however, that you write to any one of the several advertisers in BUTANE-PROPANE *News who make special burners for special purposes. It is quite possible that you may find a burner which, because of its special adaptation, would enable you to gain an edge with butane over the use of fuel oil.—Ed.*

●

Gentlemen:

Enclosed find $2.50 for my subscription to BUTANE-PROPANE *News* for the next 36 months so that I can have all copies of *The Bottled Gas Manual*, which you are publishing serially. Please give me some more information as to just what this series will contain.

R. W. B.

Texas

Your subscription has been entered. The Bottled Gas Manual, which started in the July issue and will continue for 24 consecutive months, is, in essence and fact, a text book upon the fundamentals of the bottled gas division of the liquefied petroleum gas industry. It will cover the characteristics of the gases; their uses; utilization equipment, service, and many other topics.—Ed.

●

Gentlemen:

We have a beach resort account and plan to service it with a butane-propane mixture by installing large tanks for each group of houses. We would like to use direct pressure from the tank and control same with a regulator at each house. We can supply gas through a smaller main and for a greater distance with high pressure. Our lowest temperature is 30° and that only for short periods. Can you give us some idea how far we could safely go with ⅜-in., ½-in., and ¾-in. pipe as mains?

M. B.

Florida

We would not recommend distribution at tank pressure due to hazard from accidental breaks and leakage. At 30° the pressure on the tank will be so low the small lines will not have the capacity that you contemplate.

We would recommend a low pressure distribution system with the regulators at the tanks. We are enclosing a table on capacities of such pipes (which will soon be published in BUTANE-PROPANE *News),* and the HANDBOOK BUTANE-PROPANE GASES *published by us, has, on page 172, a table and formula for computing pressure drop in lines.—Ed.*

●

Gentlemen:

Can you give me information, or direct me to someone who can, concerning the possibility or feasibility of tying in our gas line from a sewage disposal plant to our butane air-gas system? We mix and send out 530 B.t.u. butane-air gas over our system. We now have a sewage disposal plant producing about 25,000 cu. ft. of gas per day and are burning it to to dispose of it. We do not know the B.t.u. or other properties of this gas, but are of the opinion that someone has pioneered and experimented with same.

M. G. A.

Alabama

The answer to your question is beyond the scope of this department. It is entirely possible that the sewer gas could be utilized with the butane-air-mix but design and selection of the mechanical equipment necessary to utilize this waste material and hold constant burning qualities on your delivered gas require the service of an engineer to study the problem on the ground. It is entirely a matter of economics whether or not this expense would be justifiable, which can be roughly checked by determining the value of your waste sewer gas in the terms of gallons of LP-Gas and the possible yearly savings to be realized.—Ed.

●

Gentlemen:

We have a Government order for refilling four propane backfiring torches. Can you give us some information on these and give us the name of some company from whom we can order them?

L. M.

Montana

We refer you to advertisers in BUTANE-PROPANE *News, several of whom manufacture backfiring torches.—Ed.*

●

Gentlemen:

I would like information on re-testing ICC4B240 bottled gas cylinders. I am interested in setting up equipment for this testing operation. What would be necessary to carry on this work or what would be my responsibility to the Interstate Commerce Commission and the Bureau of Explosives?

G. W. D.

Kansas

The equipment necessary for retesting and a description of the process is a little too complicated for explanation in a letter. Do you have a copy of our Handbook BUTANE-PROPANE *Gases? If so, on page 254 you will find this process described in detail. You will also note that you must conform to the rules and regulations prescribed by the Bureau of Explosives in Agent Dunn's Tariff No. 2. Pamphlet No. 58 of the National Board of Fire underwriters will also be helpful to you. The latter may be had free of charge by addressing the Board at 85 John Street, New York City.—Ed.*

● **BUTANE-PROPANE *News* welcomes letters from our readers, but it must be understood that this magazine does not necessarily concur in opinions expressed.—Editor.**

an all-time Record!

Despite the biggest volume of business in our 93-year history, including orders for national defense, we have been able, to date, to fill all orders for Blodgett Streamlined Baking and Roasting Ovens on schedule!

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BLODGETT —Makers of Fine Ovens Since 1848

A Way to Aid Defense

By H. EMERSON THOMAS
Eastern Representative, Philgas Division,
Phillips Petroleum Co., New York City

THE LP-Gas industry has been one of America's fastest growing industries in the past decade—all of this in spite of the depression years.

Now we are faced with restricted activities because of greater need for raw materials to go into the manufacturing of defense supplies. It is hard to adjust ourselves to curtailments when new sales are so easily being made.

However, as an industry and as individuals we owe our rapid growth to the advantages accorded us under our system of democratic living. As a result we should now **voluntarily** curtail our future program of expansion, thus releasing urgently needed material and production plant capacity for use in emergency industries. All industries doing this will help speed up the defense program, resulting in more quickly returning to normal business. A selfish approach now may have far reaching effects on business in the future.

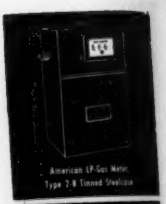
Taxes are mounting and will continue to mount until the emergency has ended; therefore, the shorter the emergency the lower our tax burden will be in the future.

This temporary slowing down of new activity will also give the industry a chance to concentrate on its internal operating, servicing, and other problems which will cause it to emerge on a more stable foundation.

Voluntary reduction in sales under 1941 volume by **all** in the LP-Gas industry will be helping ourselves in the future.

H. EMERSON THOMAS
Guest Editor For September

Metering:



NEW CATALOG LPG-4 *gives latest valuable data on LP-Gas metering — with instruments scientifically suited to each purpose. If you have not received your copy, please write.*

ITS PLACE IN LP-GAS SALES PROMOTION

● In the handling of Butane-Propane gases, station metering and bulk plant metering of the vapors are established practices. ● Today, however, the industry is fast realizing that metering not only has a functional use in practically every other method and phase of LP-Gas distribution, but that it also has a direct influence upon sales. ● The "good business" psychology of this extended use of metering is based upon the recognized public approval of *metered* sales of gas, electricity and water. Above all, metering means "honest measure," from the consumer's viewpoint. ● The long experience of American Meter Company in the LP-Gas field, and its complete range of meter types, give full assurance that customers' confidence will not be misplaced.

GENERAL OFFICES • 60 EAST 42ND STREET, NEW YORK, N. Y.

AMERICAN METER COMPANY

INCORPORATED (ESTABLISHED 1836)

A-1407

MAINLY BEYOND THE MAINS

INDUSTRY SURVIVAL

The importance of the meeting called by the Liquefied Petroleum Gas Association to discuss the problems created by priority rulings cannot be over estimated. Representatives of all companies engaged in the LP-Gas industry, and manufacturers of equipment and appliances have been formally invited and urged to attend this discussion which will be held in the Palmer House, Chicago, on Thursday, Sept. 4, at 10 A.M.

As government control over materials and production has been extended, it becomes increasingly obvious that the only industries that get any consideration, aside from those engaging in actual defense activities, are those that are able to present their case to the authorities at Washington in an insistent and convincing manner, and backed up by all of the data on industry operations, past, present and anticipated.

Manufacturers of equipment and appliances are being asked by the Association to submit through a competent and disinterested central clearing house, an estimate of the materials that they may require to supply the needs of their LP-Gas customers for 1942, together with their sales to the industry for the first half of 1941 as compared to the same period for 1940.

It is no longer a question of whether the phenomenal expansion enjoyed during the last 10 years can be maintained. That is already out of the question. The problem that now confronts the industry is one of the survival of the thousands of individual operators, and the maintenance of adequate supplies and equipment to service the million and a quarter homes who now look upon their butane or propane supply as a prime necessity.

That the manufacturers of the essential equipment and appliances would refuse to thus cooperate is unthinkable. But, it must be remembered that practically every such manufacturer has many other markets beside the LP-Gas industry, all of which are clamouring for their share of his limited output. He knows full well that what one industry does not absorb will be quickly snapped up by another. It is not reasonable to expect that any manufacturer, with a diversity of markets all crying for supplies, will fight for the

LP-Gas industry unless that industry first of all demonstrates its willingness and ability to make an intelligent fight for itself.

The responsibility for leading this fight for survival rests with the major refiners and producers of butane and propane gases. Theirs is the responsibility and the obligation to see to it that their distributors and dealers are not abandoned to an unequal struggle in which they as individuals will all be helpless.

We are well aware that differences do exist within the industry, and that the producers of liquefied petroleum gas have not always seen eye to eye as regards the effectiveness of the Liquefied Petroleum Gas Association. But in time of crisis a united front for common survival is a fundamental requirement that even the most primitive can understand.

The efforts of the Association to build such a united front bespeak the unreserved support of the entire industry. Anything less at this critical time in the industry's short history must be remembered forever after as betrayal.

MERGER MUMBO A hardy perennial blooming in LP-Gas circles around the East is the whisper-whisper-but-don't-say-I-told-you story to the effect that some big banking or financial interest or other is about to buy up all of the independent dealers and distributors and merge them into a big bottled gas syndicate.

Last fall it was a New York banking house; during the spring and early summer it was a combination of refinery interests; now it is a big pool of refugee money that is said to be ready for the plunge. But since every source credited with entertaining the idea has vigorously denied it, we feel happy in the thought that this is one time that we can write an editorial without stepping on any fallen arches.

It has been a common experience in many industries, once the business was established and showed signs of living past the diaper stage, that the banking fraternity suddenly developed a tender solicitude and interest in its adolescent welfare that was wholly lacking during the critical years of its infancy.

Lured by the mental picture of a partnership with the mint, thousands of independents have sold out the enterprises into which they have put their vision, their ingenuity and their small fortunes, and wound up as branch managers of a chain store system. All of the fantastic financial, management, holding, engineering and coupon-clipping com-

panies that were built up in the bathtub gin and big merger days prior to 1929 were built on the lure of easy financing and big profits through unification of operations and lower costs.

Even in 1939 it proved to be an unsound principle, and now in 1941 it is more unsound than ever.

What is to be gained by the individual operator of an LP-Gas company, whether he be a distributor or a dealer, thus selling out the thing that he has built with his own hands, financed through his own astuteness and developed not because of, but in spite of, financial patronage?

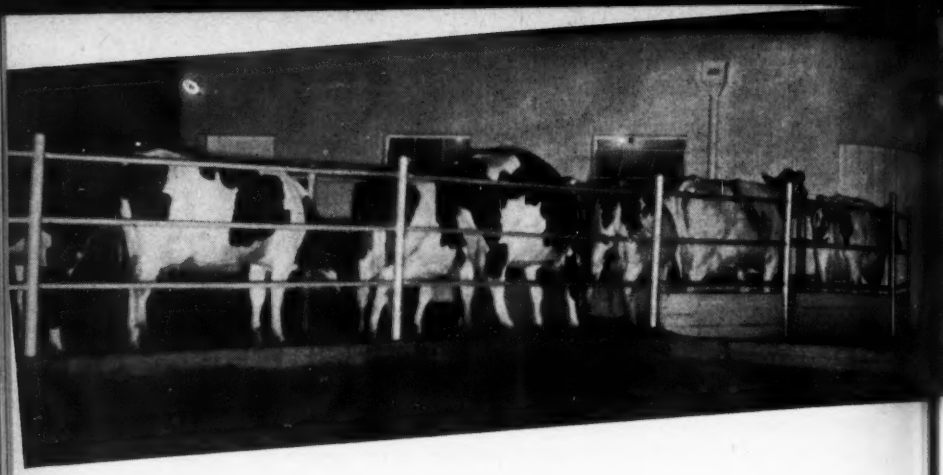
Will management expense be saved? If so, it will be out of the hide of the present owner who may be made temporarily a branch manager of the proposed giant enterprise. We believe that essentially the LP-Gas business is best operated when it is owner-operated, and the further the owner is from an intimate daily contact with his operations, the less he and the public benefit from his endeavors. It isn't necessary to mention names to recall the big-time failures that have been achieved by theorists who thought it could all be done from a swivel chair behind the potted palms.

Will there be a saving in equipment purchases? Manufacturers will tell you that their prices have been as close to cost as prudent management would permit. Big single orders centrally placed will save nothing, because manufacturers don't want bigger orders now; they want smaller ones; they are not hunting new outlets, but are striving desperately to keep their old and loyal customers supplied.

The whole argument boils down to the fact that mergers would make for easier financing, and easier financing means nothing less than financier control. And that will speedily spell the end of LP-Gas operations and of LP-Gas operators as independent factors in American economy.

Our advice to dealers and distributors who are invited to participate in grandiose merger schemes is: First of all, decide whether you want to go out of business. If you do, sell for all the traffic will bear and go buy yourself a farm with the proceeds. If you still want to continue in the enterprise that you have built up, forget the easy money and the branch managership, and go answer that telephone. It may be somebody who is out of gas.

More Than 4000 Copies This Issue

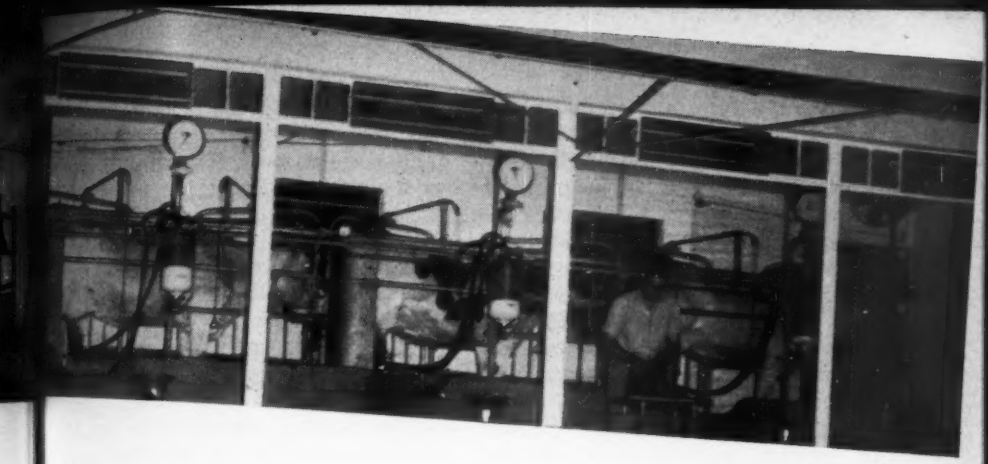


ABOVE: A string of Holsteins moving along a ramp from the barn into the milking chamber of the Bluff View Farm. Guernseys constitute the bulk of the herd.

OPPOSITE PAGE: Cows taking their turns at the milking machines. The milk, accumulating in the containers for weighing, moves next to the cooling room. Live steam, generated by a butane-fired boiler, makes possible the complete sterilization of all equipment within a few minutes.

Dairying Vi

The Bluff View Farm dairy, near Dallas, is modernity itself. Here is a view showing the frontal and length perspectives. The butane operated refrigeration equipment is contained in the first floor rooms at the immediate right front. The boiler which provides hot water and steam is on the opposite side of the building.



ing With Butane Gas

By JOHN D. MUELLER

THERE is an application of butane gas in the Dallas, Texas, area that emphasizes its value for large scale dairy operations and should suggest an avenue of profit for dealers in many other localities.

It is the use made of the fuel by the Bluff View Dairy, which recently completed one of the most remarkable plants of its kind in Texas, and possibly in the nation. LP-Gas is used for the basic motive power for many operations, and the company has gone to the modern retail establishment to borrow its principle of display to enhance the merchandising of its product—milk. The dairy has been attracting wide attention. As many as 400 men and women have registered in a single day since the new equipment was installed.

The LP-Gas man will be most interested in the uses to which butane has been applied in this plant, but he will also see a striking example of how popular display methods can be made to appeal to the eye and yet effect economies of operation.

Bluff View Dairy has an interesting history. It is the realized dream of J. T. Lively and his son. The elder Mr. Lively some years ago determined to raise registered cattle, and to produce milk for retail distribution which would win him recognition—and better prices. He went to Wisconsin, famous for its dairy stock, and purchased the nucleus of a herd of registered Guernsey cattle.

Since then his herds have grown and his business has thrived. Now his dairy is large enough to keep four trucks in service, each of them daily traversing routes of approximately 40 miles, and each dis-

tributing an average of 80 gals. of bottled milk.

The dairy is a show place, in which all of the processes are mechanical, and many of them can be observed through plate glass windows which extend along one side of the milking room.

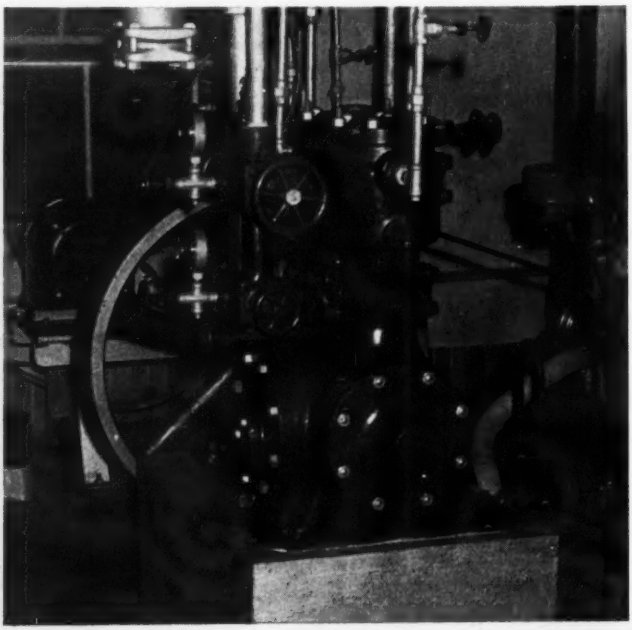
From the time the first cow leaves the barn for the dairy plant to the loading of the delivery trucks with bottled milk, butane gas is at work in some manner to facilitate or improve the various processes.

The cow approaches the milking room along a cement ramp, and just before she passes through an automatically raised door she is given a thorough bath by an attendant who stands alongside with a hose and streams water all over her, from nose to tail tip, so that when she enters the milking chamber she is spic and span.

The water used for bathing purposes, as well as all other processes, is pumped by machinery fired by butane gas.

Three cows are milked at a time, the others awaiting their turns at the door. While the milking machines are in operation each cow munches contentedly from a pan of bran.

The milking job complete, the attendant submits the milking cups to a process of washing and sterilization. First, hot water is pumped into the cups; then live steam, automatically controlled and fired by LP-Gas. Every chance of disease being communicated through contact between the cows by the teet cups is removed.



This is the central plant of the refrigeration system of the farm. The big compressor in the foreground is operated by a gas engine, just discernible to the right. Still farther to the right are the brine tank, ammonia coils and ice making equipment.

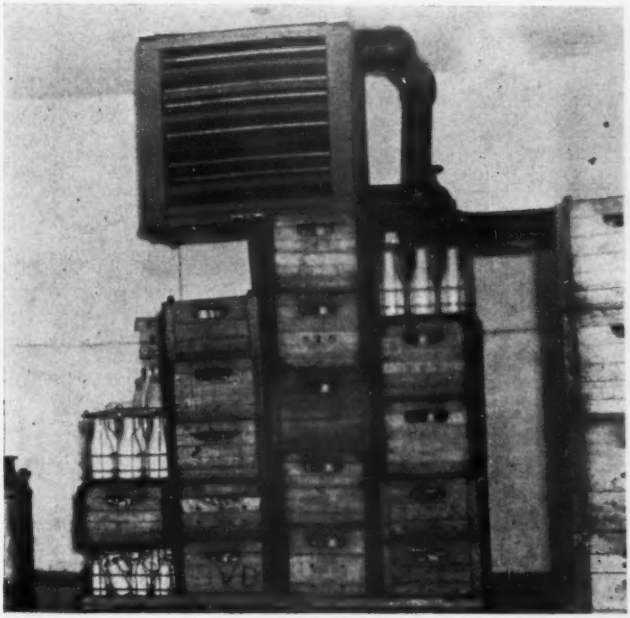
The milk from each cow flows into a five-gallon glass container. It is weighed automatically, and a check is kept on the production of every one of the animals. The milk flows from the udder through this container, and aloft into the cooling vat in the aerator room. There it flows down over coils which are kept at approximate freezing temperatures by brine, refrigerated through a compressor of 10-ton capacity, which in turn is powered by a Ford industrial engine, provided with a special carburetor which permits use of butane.

While the ice-cold brine is flowing on its way to the room for aeration, it accomplishes another highly important duty. It is coiled through a cabinet, which is divided into chambers, for freezing ice for use by the delivery equipment.

In other words, when the milking process gets started at 1 a.m. each day, the attendant fills each of these compartments with water. As the LP-Gas plant furnishes the refrigeration for the cooling of the milk, it also is freezing the blocks of ice which will be flaked for use by the delivery trucks when they load up in the early morning and start on their rounds of delivery.

This equipment is capable of a production of 1000 lbs. of ice every eight hours. The average ice requirement of each delivery truck currently is 150 lbs., making a daily load of some 600 lbs.

Nor does the part played by the butane refrigeration equipment end



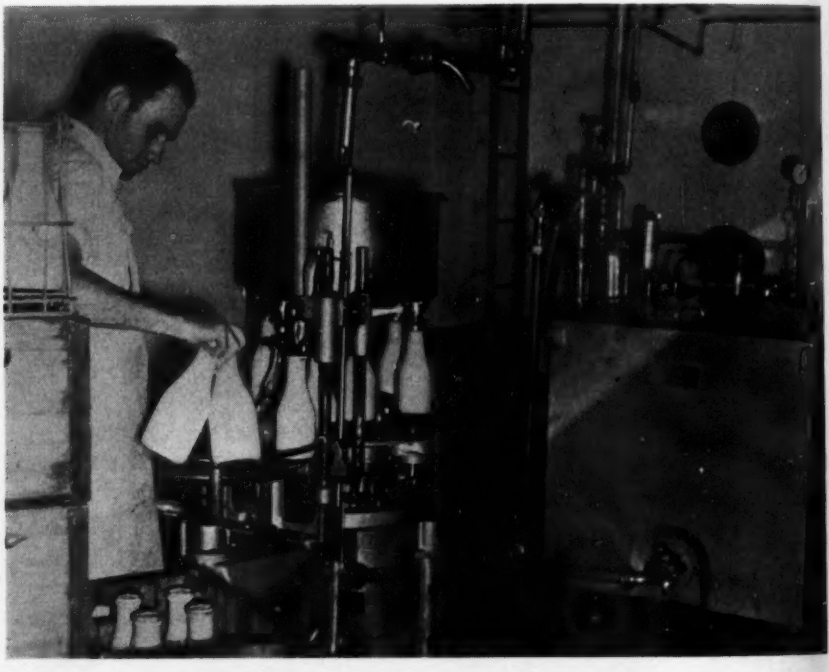
The storage vault, chilled by the blower in the foreground, is a place of utmost importance in this dairy. In it the milk is stored, following pasteurization and bottling, to await distribution. This room is maintained at a temperature of 38° F. It, like the rest of the cooling equipment, is tied in with the butane-fired system.

here. In another section of the building is a large vault, provided with a blower, which maintains temperatures of 38° within the room. This vault has been provided with an all-steel door. The bottled milk speeds into this room after the bottling is completed, and takes its place in rows of cases, each row to be picked up by a designated truck operator.

Refrigeration is but one of the aspects of this plant's operation. There is need for heat no less than cold. The empty bottles must be washed speedily and effectively. Then there is the process of pasteurization, and heat unit burden.

The milk which has been through the initial cooling, next moves down into the pasteurization equipment. Here the heat comes from a boiler which is fired by butane. While this process is under way, the bottles are being sped through the washers, with live steam and hot water of special alkaline content removing every trace of dirt.

Mr. Lively is sold thoroughly on LP-Gas. He likes to take visitors down into the machinery room, to show them the compressors.



No human hands touch the milk produced by the Bluff View Farm. Here is the bottling process under way. In the background is the pasteurization machine, its heat generated by the butane-fired boiler. The farm furnishes both raw and pasteurized milk to its customers.

"Over there," he will relate, pointing to a small, electrically powered compressor, "is our 2½-ton emergency, or standby plant—and it is exactly that—an emergency unit we can fall back on in case of need.

"That plant, mind you, is only one-quarter the power of the big one here, which burns butane and which is of 10-ton capacity. Yet operating that machine, only one-fourth the size of this, would cost us three times as much money because it uses electrical energy.

"We have a tank here of 1000-gal. storage capacity. Our average daily consumption of LP-Gas for all purposes will approximate 30 gals.

"Take our boiler system, for instance. We could, perhaps, fire that with oil at approximately the same cost, but would lose the greater convenience of butane and the added cleanliness, besides tying in with the rest of our plant.

"Operation of that system, should we have used coal, not only would have cost more for fuel, but would have required attention of an attendant.

"The way it is, we don't need anyone there at all. It operates exactly the same as the ordinary hot water heater in any home. It is furnished with a pilot light, and the flame lights or is cut off as the need of the boiler indicates. The attendant needs only to turn it on and he pays it no further attention.

"We are getting not only the hot water used for our milking processes, and the steam we require there, but for sundry other operations. We get our live steam for sterilization of the aerators, for instance, from this butane-fired source, just as wherever we need heat or need cold, we get it as required from these same sources."

The construction job, obviously, was one of importance. Several well known firms in Dallas had parts in it. The butane installation, including the engine powering the refrigeration system was by Southwest Equipment Co.; the Shaver Boiler & Machinery Co. had the contract for installation of the "Steamaster" boiler which is used; all of the refrigeration installation was under contract to Matthews Engineering Co., and the electrical installation was by W. M. Smith Electric Co.

Mr. Lively is enthusiastic in his praise of the results he is getting from liquefied petroleum gas in his establishment. He invites others in the business to see how successfully he has solved the myriad problems of powering a dairy plant.

CALENDAR

September

LP-Gas Industry Meeting—Sponsored by Liquefied Petroleum Gas Association, The Palmer House, Chicago, Sept. 4.

Society of Automotive Engineers—National Tractor Meeting. Schroeder Hotel, Milwaukee, Wis., Sept. 25-26.

October

National Safety Congress and Exposition—Stevens Hotel, Chicago, Oct. 6-10.

L.P.G.A. Midwest Section — Hotel Nicollet, Minneapolis, Oct. 30-31.

American Gas Association 23rd Annual Convention—Atlantic City, N. J., Oct. 20-22.

California Natural Gasoline Association, 16th Annual Fall Meeting—Ambassador Hotel, Los Angeles, October 31.

TABLE NO. 1. LIQUEFIED PETROLEUM GAS SALES BY CALIFORNIA MARKETERS—1940 AND 1939
(Thousands of Gallons)

Uses	*Propane*		*Propane-Butane*		*Butane*		*Total*	
	1940	*1939*	*1940*	*1939*	*1940*	*1939*	*1940*	*1939*
Domestic	8,293	7,343	9,570	5,180	4,556	2,532	22,419	15,055
Gas manufacturing..	....	....	2,774	2,478	5,524	4,772	8,298	7,250
Industrial fuel.....	510	362	1,560	1,258	186	28	2,256	1,648
Solvents and chemical manufacturing ...	....	....	....	....	....	....	....	....
Internal - combustion engine fuel.....	285	186	30,930	18,771	7,920	5,091	39,135	24,048
All other uses.....	....	....	....	3	489	493	489	496
Total	9,088	7,891	44,834	27,690	18,675	12,916	72,597	48,497
Segregation of above total by methods of transportation:								
Bulk shipments.....	1,011	346	43,996	27,476	18,640	12,876	63,647	40,698
Cylinder and drums.	8,077	7,545	838	214	35	40	8,950	7,799
Exports	89	70	155	....	....	....	244	70
Total sales.....	9,177	7,961	44,989	27,690	18,675	12,916	72,841*	48,567

* Note: This figure is 244,000 gals. more than appear as the total for California in the National totals appearing on page 39 of the July issue. This is because exports of that exact amount are not included in the National table.

TABLE NO. 2. CALIFORNIA PRODUCTION OF LIQUEFIED PETROLEUM GAS—JAN. TO MAY, 1941*
(In Thousands of Gallons)

Month		*1939*	*1940*	*1941*
Jan.	Production during month at natural gasoline plants and at refineries.....	4,318	6,579	7,757
Feb.	Production	3,947	6,002	7,857
March	Production	4,760	7,780	8,272
April	Production	4,779	7,413	9,663
May	Production	4,871	7,661	9,144
June	Production	5,106	7,230	9,882

* Note: These figures taken from the U. S. Bureau of Mines' monthly reports, prepared at the Los Angeles office by Edward T. Knudsen, of the Petroleum Economics Division, based upon records of operating companies. They include LP-Gases used by the refineries and are, therefore, about 20% above the gallonage sold.—Editor.

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California Marketers Sell 72,841,000 Gals. in 1940

A noteworthy gain in sales of liquefied petroleum gases by California marketers was made in 1940, bringing their total sales to 72,841,000 gals., according to Edward T. Knudsen, head of the Petroleum Economic Division of the U. S. Bureau of Mines, in the Los Angeles office. (An unofficial estimate of 1940 sales appeared in the March issue of Butane-Propane *News*, and gave 67,292,000 gals. as the 1940 sales volume.) This is a 50% increase over 1939 sales and more than twice the 35,140,000 gals. sold just two year ago in 1938. Current data relating to liquefied gas demand indicate that during the first three months of 1941 the upward trend in sales continued, but at the reduced date of approximately 18% over the record distribution attained in 1940. These current demand data also include company usage, but nevertheless serve quite accurately to indicate the trend of consumer sales. The report is dated May 21.

The increase of 50%, or 24,274,000 gals. in sales in 1940 appears to reflect principally the general advance in economic activity. Farm income in the Pacific Coast area rose appreciably in 1940 and there is considerable evidence that sales to farms, particularly for use in tractors or other power purposes, provided a substantial share of the increase. The establishment of service stations in the smaller towns, primarily to serve the farmers, doubtless reacts to increase highway sales.

As in previous years, internal-combustion engine fuel was the largest item of liquefied petroleum gas consumption. Such sales amounted to 39,135,000 gals. and now constitute well over half the total distribution of California marketers. Bottled gas sales for domestic use gained substantially during 1940 and amounted to 22,419,000 gals., an increase of 7,364,000 gals. Sales for gas manufacturing and industrial fuel increased appreciably from a percentage standpoint but not quantitatively, as the volume used for these purposes is relatively small.

The data contained in this report do not include (because they are not sold as such) liquefied gases used directly by the producer for fuel, polymerization, solvents, dewaxing, blending with gasoline or as a raw material in chemical plants which are operated by liquefied gas producers. A very large amount of liquefied gases is used in California for these purposes.

Table No. 1 shows the sales of propane, propane-butane mixtures and butane according to the purposes for which they were used in 1940, with comparative 1939 data. Table No. 2 shows 1941 production for the first six months.

PROFIT IS THE GOAL

Ten Steps That Lead to Better Distributor-Dealer Cooperation

By FRANK P. DeLARZELERE
President, Southern Gas & Equipment Co., Little Rock, Arkansas

LEGITIMATE and continuing profit is the object of every business establishment. The policies through which that end is attained determine the caliber of a firm and indicate to large degree the permanent success that can be expected.

F. P. DeLARZELERE

In a comparatively young field, such as the liquefied petroleum gas industry, of necessity there is some groping in the dark—some waste effort—due to inexperience and to the fact that selling and advertising methods have not been standardized to any large extent, as they have in the utility field, for instance. For these reasons, butane and propane dealers, often drawn from other pursuits, are frequently handicapped in making suitable displays to attract prospects, in preparing advertising copy that sets out to greatest advantage the salient features of their products, and in mapping sales campaigns that will be effective.

Here is where wholesale distributors may perform an invaluable service to their dealers. Sound business practices, selected from proven, successful undertakings, can be passed on to those who most need the help, and when a group of dealers is operating under wise leadership there is an accumulative effect to advertising, display and selling methods that is quickly reflected upon the profit sides of dealer ledgers.

Whether a firm is a wholesale distributor or a manufacturer, the relationship to the dealer is largely the same, it being understood that the dealer is the man who directly or through his salesmen contacts the prospective customer for his product, be that gas, appliances, equipment or all three.

Possibly it would be helpful to itemize some ways in which a dealer may be aided by constructive cooperation on the part of the wholesale distributor or manufacturer, whichever he may be:

Step No. 1 is to help the dealer "get his house in order." Has he sufficient capital for efficient operation? Has he an accurate system of bookkeeping, cost accounting and inventory (though it may be

simple) whereby he can always know where he stands financially; so he can know when costs are too high, from what activities the largest and quickest profits come, what departments are operating at a loss, why loss should be, whether or not salesmen are turning in enough business to justify their salaries or advances, and from where profits come?

Step No. 2 is to assist the dealer make a creditable "front". Has he an attractive showroom for his wares? Will customers be favorably impressed when they enter the door? Are there comfortable chairs for them? Are their floor salesmen trained in basic sales approaches which elicit confidence and disarm suspicion? Are their displays and floor arrangements changed frequently for the sake of variety? Are floors cleaned and displays dusted daily? Are their front windows attractively dressed? Are these changed frequently? Are cards and advertising matter displayed which help to explain the service and the product?

Analyze Advertising

Step No. 3. Analyze the type of the dealer's advertising and suggest improvements. Does it accurately and forcefully describe his services? Does it vividly portray the superiority of LP-Gas over all other fuels and explain *why?* Is it addressed to the ones who should be prospective customers? Are the best mediums used? Much money can be wasted from injudicious advertising; profits come from well directed advertising.

Step No. 4. Examine the potential of the dealer's territory. Accomplish this by taking the total population, eliminating those on the manufactured or natural gas lines and dividing the balance of the population by five, with certain deductions. For example, in the territory of one of our dealers we found that the four counties he was covering had a population of 150,000. Deducting the 50,000 population that was on the city gas mains, left us 100,000. Dividing this by five, for the average family, left us 20,000. Using a figure given us by a national survey organization, we estimated that 30% of this population could be rated as potential users of liquefied petroleum gas, making a potential for this particular dealer of 6000 which could be figured over a 10-year period. Now we had something that he could definitely tie into a sales program.

Unsuspected Business Near Home

He was surprised that such a potential existed in four counties as he had been working out as far as eight and nine counties from his headquarters.

Step No. 5. Help analyze the unprofitable accounts the dealer is servicing which are too far from headquarters, making delivery costs too high, or that contain other elements detrimental to profit. Thanks to some of the major petroleum companies, we have been given delivery cost per gallon per mile on motor fuel, tractor fuel and fuel oil. These figures should be shown the dealer and he will probably be surprised to see how delivery costs

jump beyond certain distances. Service costs are very deceptive unless there is an accurate accounting of them. Many a business fails because of giving too much free service. Many another one fails because a company's service policy is too stringent, creating ill-will.

Step No. 6. Work with the dealer's salesmen. The broader experiences of a long-established distributor can be of tremendous value to dealer salesmen. It pays to accompany such salesmen on occasional trips into their territories, "talking shop," visiting some of their prospects with them and pointing out classes of users that may have escaped their consideration. Many dealers and salesmen are inclined to concentrate too completely on one class of business—domestic, for instance—and overlook commercial, industrial and power opportunities. There are so many of these nearly every place. The machine shop, the manufacturing plant, the laundry, the bakery, the restaurant, the cotton gin, the mill, the mine, the dairy, the tractor, water pumping and innumerable others. Encourage them to think beyond the cooking and water heating loads. In many localities there is a rich market for space heating.

Help acquaint the salesmen with the broader field that exists for them, suggest sales presentations, closing arguments and fundamental principles of the liquefied petroleum gas industry. Tell them of the industry's trade paper, BUTANE-PROPANE *News*, of the promotional literature of manufacturers, and of the catalog and information files on appliances and equipment that every distributor should have available. And finally, try to convince them that distributors not only wish to sell them merchandise, but are anxious to help resell that merchandise to the ultimate user.

Step No. 7. Study the dealer's delinquent accounts and advise him of ways to clean them up. Supply him with form collection letters and help him to devise methods whereby he can change delinquent or inactive accounts into profit-bearing ones.

Step No. 8. Emphasize the importance of safety and the necessity of conforming to state and national codes.

Step No. 9 Explain the need for proper installations at all times—the relation of correct installations to future business and to service economies and customer satisfaction. No unusual or difficult installations should be made without proper engineering advice, which can generally be supplied by the distributor.

Step No. 10. Suggest that the dealer affiliate himself with his local, state, or the national Liquefied Petroleum Gas Association for the benefits that will directly accrue from such membership.

Yes, profit is the goal. But the ways to profit must be carefully studied and built upon sound business and safety practices. If the dealer is intelligently set up; if he has a good working plan; if he knows his costs, if he prices his

products and services so as to make a legitimate margin; if he deals fairly with the public; if he uses the utmost safety precautions; if he makes correct installations, and if he pursues a sound, aggressive sales program, profit will come. There is no industry in the country today that performs a higher public service, none that works more efficiently, none that benefits the user more than the liquefied petroleum gas industry. The rewards to the individual depend directly upon the individual's approach to the business.

In most instances the distributor of gas or appliances or equipment, or all three, is in a position to give the dealer constructive support. This helps the dealer to make a profit. And when the dealer is successful, the wholesale distributor, the manufacturer, the producer—all the industry—make a profit. That is the goal!

Irrigation Water Pumped by Butane

By O. D. HALL

OLD man river did his best this spring and early summer to render ineffective the LP-Gas irrigation system of Cecil Neville, Chickasha, Okla. The butane gas engine and water pump, which operated for a time last year to irrigate 73 acres of alfalfa bottom land on Mr. Neville's farm, were washed out of alignment and partially covered with water by the Washita river during early summer floods this year. However, the system was not seriously damaged and weather conditions rendered its use at that time unnecessary.

If, however, Oklahoma weather conditions follow the usual groove, the butane irrigation equipment is likely to be needed, at least during parts of August and September.

Mr. Neville owns or operates 270 acres of rich Washita river bottom land on the South side of U. S. Highway 62, about three miles west of Chickasha.

Last fall an alfalfa field on his land near the highway began showing the need of rain. Mr. Neville then installed a 40-hp. butane gas engine and a water pump with capacity of about 3000 gals. per minute, on the river bank across the highway from his field. He also constructed 350 ft. of 16-in. water pipe, carrying it from the pump and under the highway to the alfalfa field.

For a time the engine and pump were operated with gasoline. A little later he contracted with the Oklahoma Liquefied Gas Co., of Seminole, Okla., to install an LP-Gas tank on the river bank near the engine and convert the latter to use of butane as fuel. However, Mr. Neville did not use this gas long enough before his crop matured, to make any statistical comparison of fuel costs. He was well satisfied with general results and reported that the field was saved from ravages of drought and a good yield of alfalfa was cut.

Friendly Home Instruction Makes Better Customers

By KATHERINE KRATOSKA

Director, Home Service Department, Thermogas Company, Des Moines, Iowa

THE home service department of the Thermogas Co., in Des Moines, Iowa, was opened Jan. 1, 1941, as a service to customers and users of Thermogas, and to Thermogas dealers. This service has enabled us to discover and correct cer-

Katherine Kratoska, director, Home Service Department, Thermogas Co., Inc.

tain causes of dissatisfaction that might arise and to take care of a great many of them without the necessity of sending a service man.

In one particular instance, a user of a piece of commercial equipment was having difficulty in getting pies to brown and cookies to bake evenly. Naturally she blamed it onto the oven and asked that we check it. It seemed that when there was a pie left over and it was baked alone, it browned beautifully but when the oven was loaded, they did not brown or bake so well. As for the cookies, those on the sides of the cookie sheet nearest the side of the oven were burned.

In checking the situation, we found that in the case of the pies, the cook was placing as many in the oven as it would hold, giving no thought to the position of the pans on the oven racks. We explained to her the importance of placing the pans in the oven in such a way so as not to crowd them. They should be "staggered", that is, they should be placed so one is not directly above the other; the sides of the pan should not touch, nor should they touch the sides or the back of the oven. The oven is ventilated, and if the pans are crowded, the circulation is impaired and the pastry won't bake or brown evenly.

We still had to explain why the cookies did not bake evenly. In checking this, we asked to see the cookie sheets that were being used, and also the way they were usually placed in the oven.

In this case, the cookie sheets

were of a size that exactly fit both racks in the oven and had high edges on all four sides of the sheet. We explained that there were two conditions here that were causing her difficulty: the cookie sheets were too large and cut off circulation in the oven; the sides of the pans were too high, which would cause the outside cookies to burn. To prove this, we used a cookie sheet without sides and only a small turned-up edge on the ends. Cookies baked on these sheets were evenly browned and uniformly cooked.

Baking Was Her Hobby

As another example, I might cite the case of the homemaker who had just purchased a new range especially because she wanted an oven that would do a nice job of baking. She baked a cake in this new range and was not at all satisfied with the results, so told our salesman that the oven just would not bake. Her cake was humped in the middle and crusty on the sides. The salesman saw either a service job on the oven or the necessity of sending out a new range in order to satisfy the customer, but before doing this, the home service department made an appointment with the customer and offered to try it. The customer was pleased to have this service offered.

As we mixed the cake, we chatted about various factors that were important in mixing and baking cakes. The cake we baked raised evenly, was nicely browned and done in the usual length of time. The customer showed me a piece of the cake she had baked and it was easy to see that it was not the fault of the oven that her cake was unsatisfactory, but merely because she had overmixed it and used too much flour.

So, by spending less than two hours with this customer, she was left feeling very happy with her new range and entirely satisfied.

This service is not only for new customers but for old users as well. By calling on them to see if their stoves are working properly, we not only create good will but are able to give suggestions that even experienced cooks and homemakers often find helpful.

For instance, I have found that even women who have had their ranges for some time have not used their broilers at all or have used them very little. The reason for this is usually because they have not had a broiler in their old range and do not know how to use their new one, or because they do not know *what* to broil. Oftentimes I find that they have tried to broil the wrong cut of meat. Naturally they are not at all satisfied with the results, so give it up. After giving broiling instructions and showing various uses for the broiler, the homemaker is often anxious to try it again. I have found women who are using the oven with the racks placed backwards, not knowing that there is a definite reason and convenience for correct placement.

Slow Cooking, Less Loss

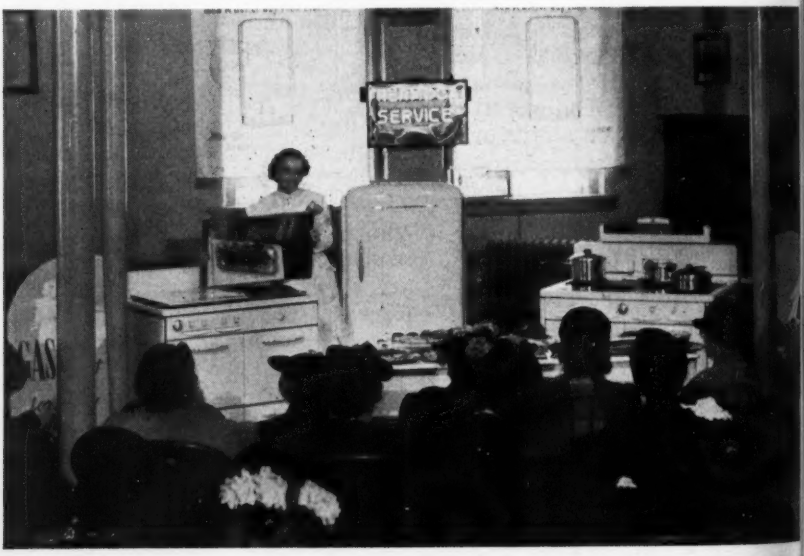
Then, too, the top burners are not always used to the best advantage. Not long ago I called on a new customer and found that she was cooking vegetables with the burners turned on full. As I was talking to her, I casually turned the flames

down and explained that by doing so the vegetables would cook just as fast and with a saving of fuel, for she could use less water and thereby retain more of the minerals which she otherwise would pour down the kitchen sink.

In visiting old and new customers, I also discuss the advantages of a permanent supply of hot water when a customer uses a gas water heater and the convenience and economy of gas refrigeration. Recipes for frozen desserts, with a little discussion of the ease of their preparation, creates an interest in new refrigeration equipment.

The home service department offers a service to Thermogas dealers since it is available for their use when they wish to sponsor a cooking school in their community. Many of our dealers have taken advantage of this service and have been more than pleased with the results. At these schools, the women come for the information given and not mainly for prizes, as is so often the case. Seldom are there any prizes except the food prizes.

I find that on the sales floor many women like to talk to someone who can, along with selling the range, also talk to them about using the various parts of it. By explaining the various parts of the range and its advantages in the preparation of foods, it is easy to create in the prospect's mind a desire for a new modern gas range. When a salesman is available, he will take charge of the sale, but the home service department is always ready and willing to assist.



This picture of a cooking school held at Osage, Iowa, shows the method of displaying to the audience the completely cooked and garnished foods.

SELLING

Sales Instruction

Instructions to your salesmen tuned to actual conditions they face in the field is the only successful method of building a producing organization rapidly. Authority for this statement is a man whose record of training men commands respect. The story he told ran as follows:

"Most good sales managers realize the importance, even the necessity of a training program for their salesmen and every sales manager who undertakes the job should have a pat on the back.

"Even though it is a struggle for him, even though he misses fire half the time, he is better off than the sales manager who attempts nothing to perfect his sales force.

"Training salesmen is a big job. It requires a tremendous amount of work on the part of the man who undertakes it. This man should not only be a topnotch salesman himself, but he should know selling principles and be able to convey them to his men in terms of firing-line conditions.

"Therein is where most training instructors miss fire. They get too far away from practical applications.

"To give you an illustration, a sales manager who has just instituted a training program, asked me to sit in on a meeting and give him a few pointers if I thought they were needed.

"His subject was on how to get an interview and most of his time was spent talking to his group which, in itself, is not good. The men should be given ample opportunity to speak and should be encouraged to express their own ideas.

"The sales manager's talk was very general, mixed with good humor, and concluded with a rousing inspirational exhortation. At the end of the talk, one of the men in the group asked for a few specific examples of the kind of opening remarks that would get an interview. And that was where the sales manager sputtered.

"Fortunately, it has not taken this sales manager long to realize that if he does not take the trouble to work out examples of specific applications of the principles presented at any meeting, he certainly cannot expect his men to do it. And he has also learned that selling principles are grasped more quickly by his men when specific applications are given. This means, of course, that his salesmen become producers more rapidly than would be possible if they had to verify the selling principles they had learned by hard knocks in the field.

"There are plenty of good books which cover the principles of selling and from which a good course

in salesmanship can be constructed. But it is not enough. The training instructor must learn to demonstrate specific methods of applying the principles to the specific problems his men face in the field."

When a Prospect Buys

Successful salesman differ so greatly in mannerisms and characteristics that it proves to be a mistake to attempt to associate personal qualities with selling.

A careful survey among a group of salesmen reveals some startling things about personal qualifications. It was found that among consistent producers, there existed many types and combinations.

Among those regularly producing a satisfactory volume of business were the tall, lanky, deliberate, slow-moving, and apparently slow-thinking salesmen. Others were wiry, snappy, quick-moving, energetic and continually talking. Another classification consisted of those who attempted to out-think, out-guess and out-wit the prospect.

In a fourth group of consistent producers were to be found the domineering, bluffing type who in spite of these things made sales.

Other qualities such as craftiness, trickery, loud talking, etc., which common sense tells us are undesirable characteristics for anyone to have, were associated with salesmen producing a very satisfactory volume.

Of course, the successful men with undesirable qualities were few in number. But the conclusion is that strength in selling does not seem to lie so much in style or mannerisms. Beneath is something more fundamental.

The survey showed that by far the greatest number of sales are made simply because the story has been told enthusiastically and logically—step by step, the prospects were built up from a general interest in something the product would do for them to a specific interest in the product itself.

It is obviously a mistake to attempt to emulate the mannerisms of a successful salesman. Simply learn to tell the story of your product in terms of the prospect's self-interests.

Lazy

I'm too lazy to think up topics of conversation — so I just talk about the things my customers are interested in.

I'm too lazy to dig up names of prospects—so I just keep busy with leads my customers give me.

I'm too lazy to chase after collections—so I try to get cash with order.

I'm too lazy to argue about non-essentials—so I use an organized sales talk.

I'm too lazy to call on a man indefinitely—so I try to get an order on the third call at least.

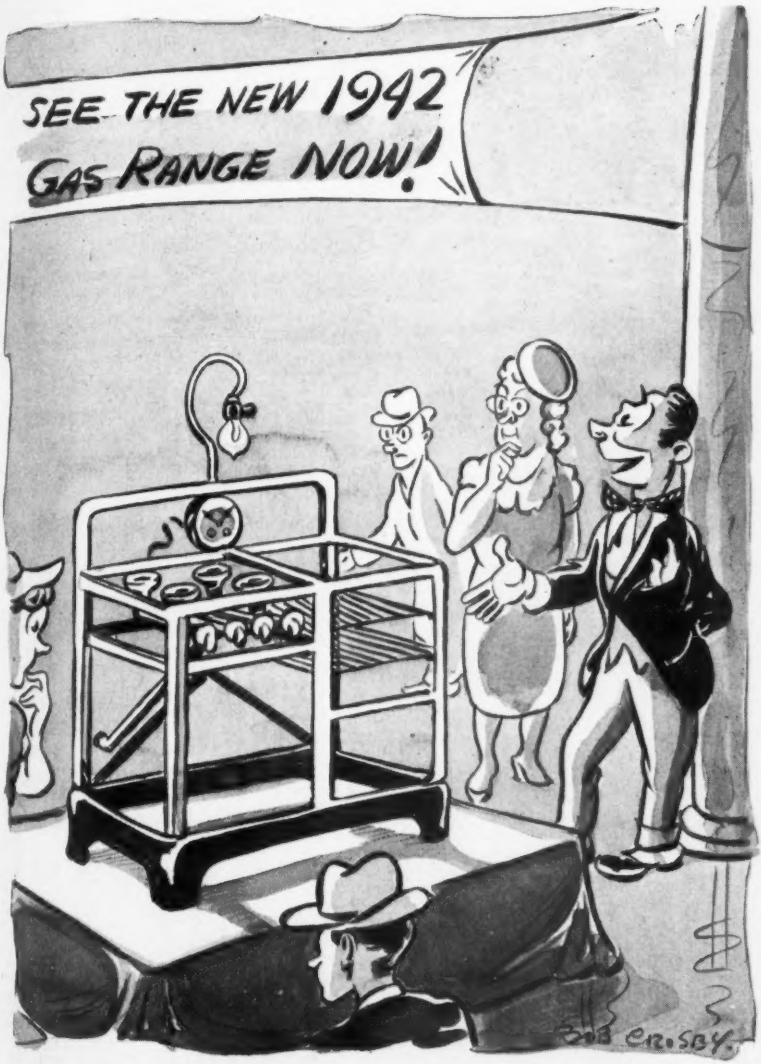
I'm too lazy to learn a lot of technical stuff—so I talk in simple terms.

I'm too lazy to walk all over town for orders—so I make myself a route list every day.

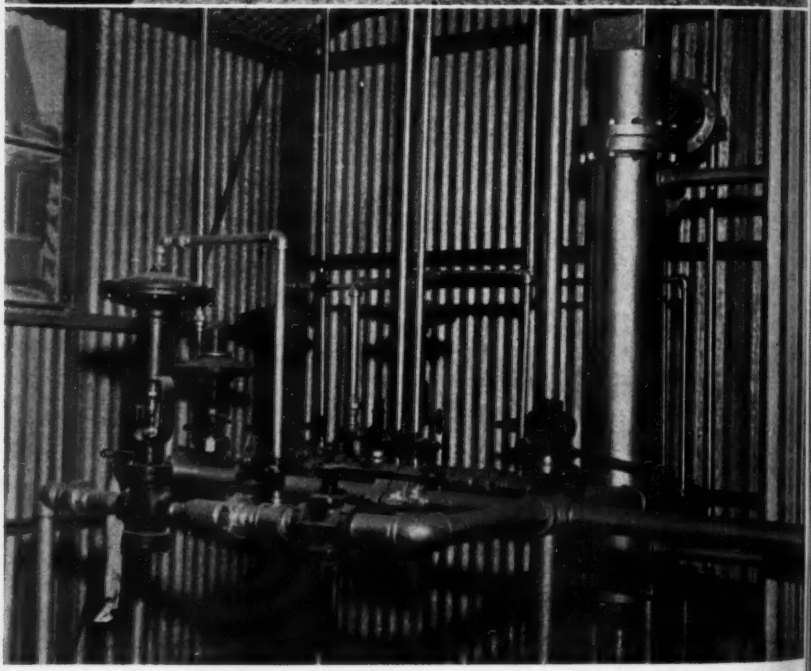
They say I'm the laziest salesman on the force—but I should worry as long as I'm still top man in sales.

—*Amcot Safety News*

DOTTED LINE ROSCOE . . . by Bob Crosby



"It's called our 'Priorities for Defense' number!"



Defense Program Speeded Up By Butane Standby Plant

By DURWARD H. PALMER
Ryan Aeronautical Co., San Diego, Calif.

TO provide against interruption in mass production of military training planes and vital aircraft parts in event of failure of the normal natural gas supply which would affect the vital role it is playing in the National Defense Program, the Ryan Aeronautical Co. has installed a butane standby unit in its plant in San Diego, Calif., to assure continuity of production in such an eventuality.

Standby Is Automatic

The standby plant is designed to deliver a maximum of 7000 standard cubic feet per hour of gas-air mix. In case of failure of the natural gas supply, the butane standby unit is immediately placed in operation manually, and it is entirely automatic in its function from then until resumption of natural gas service when the unit is manually shut down.

The installation, engineered and installed by Parkhill-Wade, Los Angeles consulting and construction engineers, consists of a 4000 gal., API-ASME code, 125 p.s.i. working pressure underground storage tank which is loaded direct from the supplying fuel truck.

Liquid butane is drawn from the tank and vaporized in a shell and tube vaporizer employing a 90,000 B.t.u. storage water heater equipped with an automatic safety pilot shut-off and temperature control. A high-level float control is installed on the vaporizer which automatically shuts off all flow of liquid to the unit in case of failure of the water heater, eliminating all possibility of liquid butane entering the gas service line.

The pressure of the vaporized gas is reduced through a pressure regulater to approximately 16 p.s.i. before joining the air line. Air for the system is compressed to 90 p.s.i. with proportioning of the gas-air mix controlled by a special ratio controller. The gas-air mix enters a mix tank and passes through a pressure control regulator reducing the gas to natural gas system pressure before entering the gas line to the plant.

Upstream of the mix tank, a manually reset safety shut-off valve is installed to prevent an explosive mixture of air and gas from entering the plant due to any failure of the heat supply to the vapor-

In San Diego

OPPOSITE PAGE (Top): A fleet of planes, ready for shipment, on the grounds of the Ryan Aeronautical plant, and (below) the vaporizer and regulator set-up.

izer. Automatically controlled for shut down due to failure of gas pressure, the shut-off valve must be manually reset before the system will resume operation. Purpose of the manual reset is to prevent gas from flowing after any failure during which pilot lights have been extinguished.

Can Use Liquid or Vapor

Should the liquid phase of the system be temporarily inoperative, the vapor phase automatically becomes active and remains so until service is resumed on the liquid phase. Vapors are drawn off the top of the storage tank and passed through a pressure regulator to join the air line, the gas-air mix being controlled by the ratio controller as in the case of operation by the liquid phase. Switch over from liquid to vapor phase is automatically controlled by pressure drop on the liquid phase and visa versa. The entire system, excepting the storage tank, is housed in a vaporizer house and operations are shown on an instrument panel. This panel includes a storage tank pressure gage, a plant supply air pressure gage, a gas system low pressure gage, a mix tank air pressure gage and a recorder gage for the air-gas ratio controller.

With military training planes playing as vital a role in National Defense as bombers, the Ryan Aeronautical Co. is engaged in mass production of the newest primary trainer for the U. S. Army Air Corps which is designated as model PT-21, while a similar model, NR-1, will be made for the U. S. Navy.

Exhaust manifolds are also an important part of the National Defense production at the Ryan plant. These are manufactured for use with numerous makes of airplanes.

Gas in the Ryan plant fires furnaces for heat treating vital plane parts, for maintenance of temperature in anodizing, passivating and pickling chemical bath treatments and for temperature maintenance in the paint shop. Shutdown of these processes would not only affect the Army and Navy pilot training program through curtailment of training plane production but it would likewise affect production of military aircraft in many other aircraft plants. In its role as standby against failure of the natural gas supply, butane now plays its part in this branch of national defense.

◆ ◆

L.P.G.A. Sponsors Industry Meeting in Chicago, Sept. 4

So many of its members have turned to the Liquefied Petroleum Gas Association for assistance and advice concerning their priority problems that the Association has decided to sponsor an industry meeting on Sept. 4 for a full discussion of this subject with the objective of formulating plans for Association action, if such steps appear to be advisable, according to F. R. Fetherston, secretary.

The meeting will be held at the Palmer House, Chicago, at 10 o'clock in the morning, Central daylight time.

Any suggestions by members of the industry which should be considered at this meeting must be sent to the Association's office at 11 West 42 St., New York City, so as to arrive not later than August 27.

More and more . . Buyers want

Steam Radiator Heat

. . and Clow Gasteam Radiators using Propane or Butane Gas provide all advantages of Central Steam Heat plus the flexibility of individual room heaters

Clow Gasteam Radiators make permanently satisfied heating customers. Each radiator is a complete steam heating unit that provides uniform comfortable heat—independently—for each room. They supply the most universally recognized superior type of heat—Radiator Heat—yet they deliver this heat more economically than either a central plant or an ordinary space heater.

OPERATING PRINCIPLE of Gasteam Radiators

1. Gas burner completely enclosed in a combustion chamber in the bottom portion of the radiator sections.

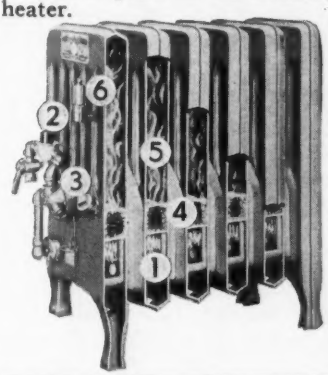
2. Cut-off valve that closes automatically if the pilot gas is not burning.

3. Steam regulator that automatically controls the size of the gas flame to maintain uniform heat in the radiator.

4. Boiling water that is heated from the gas flames below it and which supplies the steam to the radiator sections.

5. Steam rising in the radiator sections and evenly heating all portions of the radiator.

6. Air valve that automatically allows air in the radiator to escape, but holds back steam.

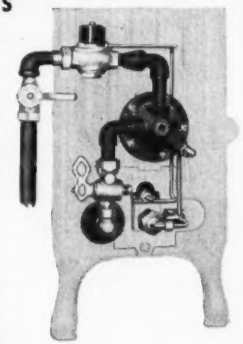


AUTOMATIC SAFETY (cut-off) VALVE

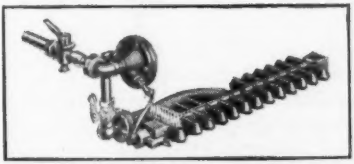
The automatic cut-off valve shuts off all gas flow when pilot flame is extinguished from any cause, and is standard for L. P. gas.

ROOM THERMOSTATS

For complete heating, or for unusually close room temperature regulation, two types of thermostats are available — (1) the non - electrical combined type, and (2) the remote electrical type.



Vented and Unvented Gasteam Radiators are available in many sizes and heights, in capacities from 4,100 to 43,000 B.t.u. per hr.



The 2-Way Burner combining pilot and main burner in a single casting insures prompt ignition of the main burner gas from pilot flame.

For further information, write

James B. Clow & Sons
201-299 N. Talman Ave. Chicago, Ill.

THE BOTTLED GAS MANUAL

Chapter 3. Heat and Temperature . . . Latent and Specific Heats

TONIGHT the cheering warmth of the fireplace in the cool of a Maine summer evening feels good to us. As I have been sitting here watching the dancing flames and glowing embers I have been thinking what a tough time our ancestors had before they discovered the secret of fire. When man first discovered how to create at will, first a spark, then a flame, the cornerstone of Progress was laid.

What Is Heat? The ancients held a theory that heat was a mysterious sort of liquid or invisible flux. Today we know that *heat is a form of molecular activity.* Our theory is that there is no such thing as an absolutely solid piece of matter. We believe that molecules enter into a loose relationship which permits a limited freedom of independent motion. This motion is of an oscillatory or vibratory type, and is more or less irregular. The colder it is, the less active the molecules are, until at absolute zero (—459.72° F.) all molecular activity ceases.

Heat, then, is a form of molecular energy. It may be transferred from one body to another, or it may be the result of other types of energy expended against resistance, or it may be one of the products of chemical action.

What Is Temperature? Cold is the absence of heat, and temperature is a measure of the degree of hotness. It must not be confused with the quantity of heat. To illustrate this difference let us imagine a flight of stairs in which there are 212 steps, with a landing at the 32nd step. Let us imagine that there is a can of water weighing exactly one pound and that it is placed upon the 32nd step landing. It requires a certain amount of work or energy to lift that can of water from the 32nd to the 33rd step. As there are 180 steps from the landing to the 212th step the lifting of the can of water from one step to the next requires just 1/180th part of the total energy required to lift the can of water from the 32nd to the 212th step.

Let's keep this picture as it is in our mind except that we will substitute a Fahrenheit thermometer scale for the flight of stairs. It still

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● The first two chapters of *The Bottled Gas Manual* series, by C. C. Turner, of Portland, Maine, covering the subjects, "What is Propane?" and "Fundamentals of the Behavior of Gases," appeared in the July and August issues of BUTANE-PROPANE News. Chapter 3 is presented herewith, and discusses methods of heat transfer, conduction, insulating materials, laws of radiation and many other topics. Succeeding chapters will appear monthly until the entire course is completed, and the series will constitute a valuable text book and field manual that should be preserved by everyone in the LP-Gas industry.—*Editor.*

REGULATORS YOU CAN RELY ON
RELIANCE
SINCE 1910

RELIANCE REGULATORS

Assure Uninterrupted Service for Liquid Petroleum Gas Appliances

PIONEERS IN THIS FIELD

The American Meter Company invites you to investigate the outstanding advantages of Reliance Regulators for Bottled Gas control before you leave the Convention.

Reliance Regulators are available for large and small installations with automatic control of multiple cylinder assemblies. They are safeguarded by a safety seal. Two-step reduction eliminates the possibility of high pressures getting into the appliances.

Reliance Regulator Corporation, 1000 Meridian Ave., Alhambra, Cal.

requires energy to lift the pound of water one step or one degree.

From this picture we will draw some truths. Temperature is like a flight of stairs, or in other words it is *the level of heat.* The energy expended climbing those stairs or lifting the water from one step to the next *is* heat.

Measuring the Quantity of Heat. If the weight of water had been 100 pounds instead of one pound, then the energy required to raise the 100 pounds each step would have been 100 times as much as for one pound. As the pound is the unit of weight in the English system of measurement it is used as the basis for establishing a unit of heat measurement. A high-flown name has been attached to it—the British Thermal Unit — and it is the amount of heat (energy) required to raise the temperature of one pound of water one degree Fahrenheit.

Let's state again just what a British thermal unit (B.t.u.) is, for we will have much to do with it while we are in the gas business.

> "A British thermal unit is the amount of heat required to raise the temperature of one pound of water one degree Fahrenheit."

Methods of Heat Transfer. Now that we know that heat is a form of molecular energy measurable by a man-made standard in the form of a B.t.u. and that temperature is a degree of hotness or level of heat, we may consider methods of heat transfer. There are three methods by which heat may be transferred from one place to another, and they are as follows:

1. Conduction.
2. Convection.
3. Radiation.

Conduction. Conduction is of two types—internal conduction and external conduction.

Internal conduction is the transfer of heat between two parts of the same body.

External conduction is the transfer of heat between two distinct bodies that touch each other.

There are many illustrations of both types of conduction in practical usage. Perhaps the best illustration is the old-fashioned, one-piece stove lid lifter. The lifter received heat at one end by external conduction through its contact with the stove lid. By internal conduction it transferred heat to the handle end of the lifter so that it was necessary to use a heavy pad in grasping the handle in order to avoid burning the hand.

Relative Conductivity. All materials do not conduct heat with the same rapidity, and we take advantage of this fact in many every day applications. We put grips of poor conducting capacity on ironing handles. We use metals of varying conductivity and expansion in safety shut-off valves. We use poor heat conductors for insulating materials. Among metals, silver is the best conductor, bismuth the poorest. Table 4, based on a relative conductivity of 1000 for silver, will be of great interest to us at a later time.

Insulating Materials. Insulating materials are used to prevent the conduction of heat. Table 5A in

HERE'S HOW WE HELP YOU SELL

BEYOND THE GAS MAINS? *Magic Chef ranges are available for Pyrofax Gas in East and Central States, other LP (Bottled) Gases elsewhere. See your range dealer or gas company today!*

This Picture and Caption are part of the Magic Chef ad appearing in Saturday Evening Post, September 6th, Ladies Home Journal, October.

FOR fourteen years Magic Chef's national advertising has been telling readers beyond the gas mains to use Magic Chef Ranges with "Pyrofax" gas. Now that message is expanded to reach even broader coverage, and similar "spots" will appear in all our 37 million magazine ads this fall.

Magic Chef Ranges, incidentally, are built especially for use with LP-Gas and for many years our Research Laboratories have devoted special attention to this field.

* * *

This fine quality model at popular price (series 6700) has non-clog burners adjustable from high to simmer; insulated oven, pull-out broiler, divided top, roomy storage space, light, timer and condiment set.

Magic Chef

The Red Wheel Gas Range with the Lifetime Burner Guarantee.

The Magic Chef franchise is still open in some areas. WRITE TODAY for details.

AMERICAN STOVE COMPANY

4301 Perkins Avenue **Cleveland, Ohio**

"We push GAS REFRIGERATION ...it helps sell other L.P. Gas APPLIANCES!"

say dealers!

1. **"A SURE WAY** to step up interest in L. P. Gas Appliances, we've found, is to build our story around Servel Electrolux. We've learned from experience that the Gas Refrigerator is a swell springboard for getting prospects enthusiastic.

2. **"SERVEL HAS** a *natural* selling story . . . one that no other refrigerator can touch! You see, Servel alone has *no moving parts in its entire freezing system.* It's easy to show prospects that "no moving parts" means they'll enjoy permanent silence, continued low operating cost, freedom from costly wear and a long life of dependable service from their Servel.

3, **"AND ONCE** a customer understands Servel's basic operating advantages, it's hard for him to resist its other *plus* advantages . . . Servel's beauty and adaptability . . . its modern features . . . the fact that it pays for itself in operating and food savings. Yes . . . Servel sells itself. But, more important, it also helps us sell other gas appliances . . . and protect and increase gas load!"

Gas Refrigeration will help you:

- **PROTECT YOUR PRESENT L.P. GAS LOAD**
- **BUILD NEW L.P. GAS LOAD**
- **STIMULATE THE SALE OF OTHER L.P. GAS APPLIANCES**
- **PUBLICIZE THE MODERNITY OF L.P. GAS**

composite one gathered from many reliable sources and will be of great value to us in later chapters. It does, however, illustrate that there is a wide divergence of opinion in relation to some materials and brings out the fact that the gas industry might, through its many experimental laboratories, do some extensive research work on this subject.

There are many commercial insulating materials and wallboards on the market, and some textbooks give heat leakage values for them. I find that here again is a wide divergence of opinion and therefore hesitate to publish such information. It will be found that insulating materials by general classification run somewhat as shown in Table 5B.

Convection. Convection is the transfer of heat by circulation. In Chapter 2, we learned that fluids are relatively poor conductors of heat. They may, however, be used as excellent transferring agents through their property of convection, or ability to circulate. Heat is transferred from one molecule of a fluid to another by external conduction, as well as from the heating unit to the molecule by the same method. Because of the relatively poor contact between the molecules of a fluid, heating by this method would be slow excepting for the property of circulation possessed by them. The volume of a fluid is increased by its absorption of heat, hence its density is decreased, and the heated portion tends to rise or float. After the heated portion has risen to the top of the container it loses its heat to the surrounding molecules and to the top of the container, this causing a decrease in volume and increased density, which in turn causes this portion of the fluid to sink. This process of circulation goes on indefinitely as long as it is possible for the fluid to absorb heat from some low point in the container or system.

All circulating heaters and the so-called "air conditioning" systems depend upon the convection principle for their efficient operation. Heat is transferred to an entire room from one small steam radiator by this method of convection.

Let's analyze what happened in cooking our soup this evening:

TABLE 4. THE RELATIVE CONDUCTIVITY OF METALS.

Conductivity Factor for Silver Taken as 1000

Material	*Relative Conductivity*	*Material*	*Relative Conductivity*
Aluminum	665	Gold	981
Antimony	From 192 to 215 depending on method of casting.	Platinum	380
Bismuth	61	Steel	397
Cadmium	577	Tin	422
Cast iron	359	Wrought iron	436
Copper, cast	811	Zinc, cast	628
Copper, rolled	845	Zinc, rolled	641

NOW

MORE THAN EVER BEFORE

The call of the defense industries and the service has already resulted in a shortage of trained manpower. Day by day business is being faced with increased operating costs. If L.P.-Gas dealers are to continue to build their business and show satisfactory profits, now, more than ever before, they should sell Hydrogas, the System that offers trouble-free operation.

The patented Vaporizer and Re-Vaporizer found only on Hydrogas Systems recover heat losses and revaporize any condensation in the service line to insure an uninterrupted, dependable gas supply when temperatures are low. This, along with other important patented Hydrogas features, will save you many unnecessary expensive service calls. And, your customers will be more satisfied because with Hydrogas they own a System that operates efficiently under all sorts of conditions.

Responsible dealers who are interested in the profit-making possibilities of an exclusive Hydrogas franchise should write us today.

SOUTHERN STEEL COMPANY

SAN ANTONIO, TEXAS

HYDROGAS

1. There was internal conduction from the bottom side of the range top to its upper side.

2. There was external conduction from the range top to the bottom of the cooking vessel.

3. There was external conduction from the bottom of the cooking vessel to the molecules of soup.

4. There was convection between the molecules of soup as they circulated within the cooking vessel.

Even in the preparation of this primitive form of nourishment we find that the laws of science play an important part!

Radiation. At times this evening it has been necessary for us to move away from the fireplace. If this had been because of convected heat we would have felt uncomfortably warm all over our bodies, but this was not the cause. We felt the warmth only upon our faces, hands, and the portion of our legs only thinly covered by our clothing. This was *radiant* heat, and it is the type of heat of which we talk the least and yet upon which our very existence depends.

Did you ever stop to think of how the heat of the sun reaches this earth? It couldn't be by conduction, for there is no physical contact between the sun and earth. It couldn't be by convection, because there is a vacuum in the infinite space which separates us. It is by radiation, and those wonder-

TABLE 5A. INSULATING MATERIALS SHOWING LEAKAGE IN B.T.U. PER SQ. FT. PER 1° F. TEMPERATURE DIFFERENTIAL PER HOUR THROUGH 1 IN. OF THICKNESS.

Material	*Leakage*	*Material*	*Leakage*
Air	.175	Sawdust	.404 to .42
Asbestos paper	.500	Shavings, wood	.41 to .416
Charcoal, ground	.36 to .39	Wood—	
Corkboard	.25 to .34	Cypress	.67
Cork, ground	.295 to .310	White pine	.78
Felt, hair	.246 to .261	Hard pine	.98
Glass, sheet	5.0 to 6.0	Mahogany	.90
Glass wool	.29	Oak	1.02
Gypsum plaster	2.33 to 3.00	Maple	1.10
Mineral wool	.271 to .321	Wool, pure	.246
Rock wool	.26 to .28	Wallboards, fibrous and soft	.34 to .39
		Wallboards, fibrous and hard	.500

TABLE 5B. LEAKAGE IN B.T.U. PER SQ. FT. PER 1°F. TEMPERATURE DIFFERENTIAL PER HOUR THROUGH 1 IN. THICKNESS.

Material	*Leakage*
Soft flexible materials in sheet form	.24 to .28
Loose materials	.26 to .42
Semi-flexible materials in sheet form	.25 to .40
Stiff fibrous materials in sheet form	.34 to .39
Gypsum in cellular form	.35 to 1.00 depending on density.

BANKS TANKS DOMINATE

And now! MR. DEALER —

Banks Also Sells . . .

- TRU-FLAME GAS RANGES
- SCAIFE CYLINDERS
- ALGAS CARBURETORS

Why not look to the leader for better tank values? You profit from tremendous buying power and large fabrication facilities. It's Banks for Butane-Propane Underground Tanks, Bulk Storage Tanks, Skid Tanks, Truck Tanks and other fabrications.

Above is one of three 12,500 net gallons storage tanks constructed for the Anchor Petroleum Company of Tulsa, Oklahoma and The Butane Company of Brownwood, Texas.

DALLAS TANK AND WELDING COMPANY, INC.

201-5 W. COMMERCE ST. DALLAS, TEXAS

ful rays travel to us with the speed of light—186,300 miles per second!

If we were disposed to be really technical we would say that radiant heat was "the transmission of heat by the vibration in undulatory waves of radiant energy," but we are not trying to be technical, and we want some explanation which is simpler and more to our understanding.

Physically, radiant heat and light are the same, but we react to them through different senses. Even the cold brilliance of an electric light brings us a sense of warmth through the nerves of touch.

Our eyes react to the short ether waves. The long ether waves are invisible to us, but they heat any body which lies in their path. An example of this is the sheet metal wood-burning stove. We can enter a pitch dark room and yet spot the location of such a stove immediately because of these long ether rays which it emits.

Laws of Radiation. Radiant energy is transmitted in accordance with certain fundamental laws which are as follows.

1. Radiant energy travels in straight lines.

2. The amount of radiant energy transmitted to a body varies inversely as the square of the distance from the energy source.

3. Radiant energy is reflected from polished surfaces.

4. The angle of reflection of a radiant ray is equal to the angle of incidence.

5. Surface conditions determine the ability of any substance to reflect or absorb radiant rays.

6. Radiation takes place between bodies regardless of the distance apart, and is governed by the same laws which apply to the radiation of light.

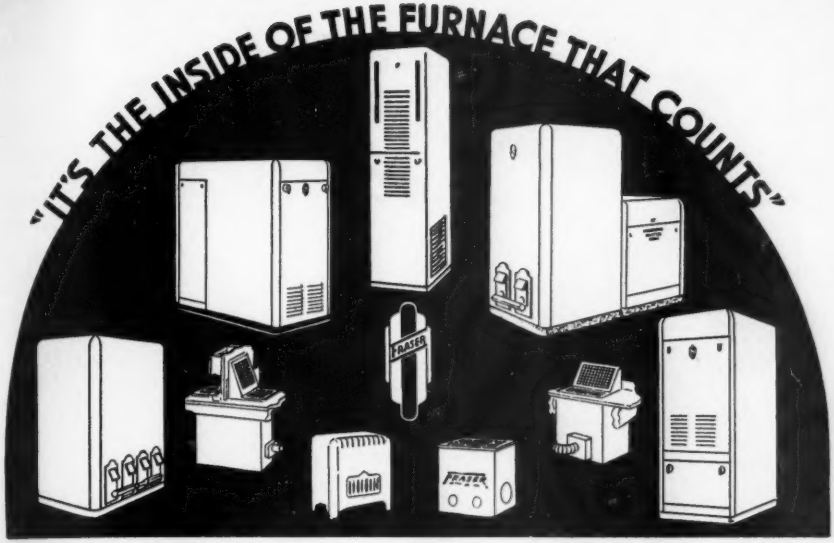
7. The amount of heat lost by radiation is proportional to the excess of a body's temperature over that of the surrounding medium.

8. The transmission of heat by radiation through a body depends upon the wave length of the radiations, the thickness of the substance, and the characteristics of the substance.

Specific Heat. The amount of heat required to raise the temperature of various materials differs greatly. We already have established as a standard the amount of heat necessary to raise the temperature of one pound of water one degree Fahrenheit. Where it requires 1 B.t.u. to raise the temperature of one pound of water 1° F., it only requires .2185 B.t.u. to raise the temperature of one pound of aluminum 1° F. We have another rule to memorize, which is as follows:

"The specific heat of any substance is the capacity of that substance for receiving heat as compared with another substance which is taken as standard."

A knowledge of specific heats is of great value to the propane engineer. By way of example, let him be confronted with the problem of raising the temperature of a 5-lb. piece of cast iron 1000° F. By consulting the table of specific heats he finds that the specific heat of



FOR PROFITS - SELL FRASER

Efficiency-Long Life-Eye Appeal

(ENGINEERING . . . . . MATERIALS . . . . . STYLE)

assure greater satisfaction for you and your customers

When you sell Fraser Furnaces you get a COMPLETE LINE . . . a type and size of LPG warm air equipment for every heating need. They range from circulating consoles to mammoth, multiple outlet, forced air systems.

In all models, advanced engineering principles, fine materials and modern design help make your selling job easier—your customer's satisfaction greater.

Installation too, is made easier by complete assembly, fully wired controls and numerous time saving features. Pre-testing with LPG fuel under actual operating conditions before shipment assures maximum performance . . . a minimum of service calls.

For better profits specialize on Fraser—the heating equipment you can safely recommend. Illustrated data and specification sheets are quickly convincing. Send for them today.

H. R. BASFORD CO.
DISTRIBUTORS
SAN FRANCISCO LOS ANGELES

FRASER
GAS HEATING EQUIPMENT

FRASER FURNACE CO.
MANUFACTURERS
STOCKTON CALIFORNIA

"It's a *Robertshaw* heat control—a marvel of streamlined efficiency. You turn on the gas and set the control with one single motion. To turn it off you return the control to zero. Simple? Yes, and *sure*—the only control you *can't* forget to set!"

The simpler the control, the easier to use, the quicker to sell!

ROBERTSHAW HEAT CONTROLS

ROBERTSHAW THERMOSTAT COMPANY, YOUNGWOOD, PA.

TABLE 6. SPECIFIC GRAVITIES, SPECIFIC HEATS, LATENT HEATS OF FUSION AND VAPORIZATION.*

Material	*Temp. Fahrenheit*	*Specific Gravity*	*Temp. Fahrenheit*	*Specific Heat*	*Latent Heat B.T.U.*	*Melting Point Fahrenheit*
Aluminum	68	2.702	68	.214	138.44	1220
Antimony	77	6.684	32	.0494	31.68	1167
Barium	68	3.5	68	.068	49.5	1300
Bismuth	68	9.78	68	.0294	22.752	520
Brass	68	8.5	68	.0917	69	1800
Cadmium	68	8.642	226	.0569	24.588	610
Calcium	84	1.54	68	.157	97.74	1560
Carbon						
amorphous	68	1.9	68	.204	.....	6700
graphite	68	2.25	68	.17	.....	6700
diamond	68	3.52	68	.12	11111.	6700
Charcoal	68	.441	68	.165	.....	.....
Chromium	68	7.1	68	.11	126.0	3270
Copper	68	8.93	68	.0921	75.6	1981
Glass, white	68	2.9	68	.1917	90-143.5	1500-2300
Gold	63	19.3	212	.0314	28.44	1945
Ice	32	.922	32	.5040	142.65	32
Iridium	62	22.42	68	.0323	.....	4450
Iron, pure**	68	7.865	68	.107	88.6	2795
wrought**	68	7.78	68	.1152	60 approx.	2750
gray cast**	68	6.85-7.48	68	.1298	41.4	2680
white cast**	68	7.1 plus	68	.1298	59.4	2245
soft steel**	68	7 plus	68	.1165	.....	.....
hard steel**	68	7 plus	68	.1175	.....	.....
Lead	68	11.344	68	.0306	9.67	621
Linotype metal	..	.....	68	.035	20	465
Magnesium	68	1.74	68	.246	126.0	1204
Manganese	68	7.20	68	.12111	66.0	2300
Mercury, liquid	68	13.546	68	.03315	5.09	minus 39
Molybdenum	68	10.2	68	.065	.....	4748
Nickel	68	8.90	68	.105	132.84	4750
Phosphorous						
yellow	48	1.82	48	.189	9.06	111
red	48	2.20	48	.190	.....	1094
Platinum	68	21.45	68	.0324	48.96	3224
Potassium	68	.86	68	.192	28.26	145
Silver	68	10.5	68	.0558	37.926	1761
Sodium	68	.971	68	.295	57.06	208
Sulphur	68	1.96	68	.181	13.26	246
Tantalum	68	16.6	68	.036	.....	5430
Tin, gray	68	5.75	64	.0542	25.65	449
Titanium	68	4.5	68	.100	25.2	3310
Tungsten	68	19.3	68	.034	.....	6170
Uranium	68	18.7	68	.028	.....	3360
Vanadium	68	5.866	68	.1153	.....	3155
Water	62	1.0	62	1.0	970.4	212
Wood, general	68	under 1	68	.3 to .7	.....	.....
Zinc	68	7.14	68	.068	50.63	787

*For ordinary calculations, the values given in this table may be used without corrections for temperatures.

cast iron is .1298, which means that it requires .1298 B.t.u. to raise the temperature of 1 lb. of cast iron 1° F. Barring heat loses due to radiation and application (the former of which he can figure in accordance with rule No. 7 under "*Laws of Radiation*") he knows that it will require 5 × 1000 × .1298 = 649 B.t.u. to heat the iron, exclusive of losses. We will later devote a chapter to this matter, but just at present we are concerned chiefly with fundamentals. Tables 6 (Page 49), 7, 8, 9 and 10 will be of general interest to us in figuring some simple problems.

Latent Heat. Let us get back to the teakettle illustration again. After the water has started boiling there will be no rise in temperature while it is boiling and disappearing into the room as steam. If there happened to be exactly one pound of water in the teakettle it would require exactly 970.4 B.t.u. to change it into steam.

There are two types of latent heat—the latent heat of fusion and the latent heat of vaporization. Latent heat of fusion applies to the amount of heat required to change a solid into a liquid; latent heat of vaporization pertains to the changing of a liquid into a gas.

We must not become confused by this word "latent," which means something which is dormant, lying idle, not visible or apparent, hidden or concealed. While we have the phenomena of applying heat with no apparent change in temperature while the state of a body is changed, the heat is not lost, for in a reversal of the process the latent heat is recovered when the substance changes back from a gas to a liquid or from a liquid to a solid. Although we have apparently lost the 970.4 B.t.u.'s which

TABLE 7. SPECIFIC HEAT OF VARIOUS LIQUIDS.

Liquid	*Temp. Fahrenheit*	*Specific Heat*
Alcohol (methyl)	32	.566
Benzine	68	.406
Bismuth	566	.0292
Butane (normal)	32	.550
Ether	58	.517
Iso-butane	32	.550
Lead (melted)	680	.0375
Mercury	68	.03315
Propane	32	.576
Sulphur	278	.220
Sulphuric acid	50	.339
Tin, melted	449	.0402
Water	62	1.00

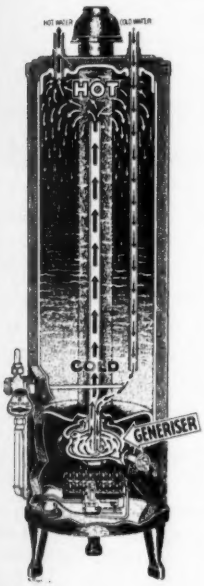
TABLE 8. SPECIFIC HEAT OF VARIOUS GASES.

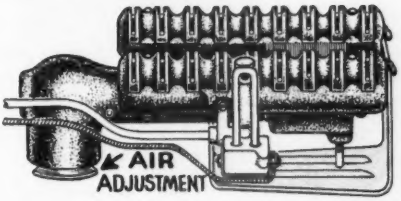
Gas	*Constant Pressure*	*Constant Volume*
Air	.23571	.16847
Acetic acid	.4125	....
Alcohol	.4334	.399
Ammonia	.508	.299
Butane-normal	.459	.414
Carbonic acid	.217	.171
Chloroform	.1567	....
Ether	.4797	.344
Hydrogen	3.40900	2.41226
Iso-butane	.462	.415
Nitrogen	.23480	.17273
Olefiant gas	.404	.332
Oxygen	.21751	.15507
Propane	.473	.411
Superheated steam	.4805	.346

Note: Temperature Fahrenheit —Temperatures are the normal ones which might be encountered in usual laboratory experiments. Values given may be used for all ordinary figuring.

Load-Building News

READ WHY
"GENERAL" BURNERS HIGHEST in L. P. G. EFFICIENCY





Time after time, in rigorous tests, GENERAL'S milled, slotted type burner has proved its superiority for low hot flame L. P. Gas. ☆ Precision manufactured in GENERAL'S own model factory, this exclusive, broad-flame burner is absolutely silent and will not backfire. Soot free, self cleaning. Cast iron construction, solidly bolted to bottom pan. No gauze or screen. Easily cleaned in position. Positive air adjustment "stays put." ☆ Every size and price range—each ideal for L. P. Gas. Build load—and good will—with GENERALS.

100% gas shutoff of both main burner and pilot. Ask about other unique advantages and liberal L. P. G. Dealer offer. Address R. H. Hinckley, General Sales Manager.

L.P. General WATER HEATERS

SPECIFICALLY MADE FOR BOTTLED GASES

GENERAL WATER HEATER CORPORATION

7 East Cypress Avenue, Burbank, California

SAN FRANCISCO • DETROIT • KANSAS CITY • DALLAS • HOUSTON • MEMPHIS

have gone into boiling away the quart of water in the teakettle, this is not actually the case, for the steam in condensing into a liquid again has given up that 970.4 B.t.u.'s to raise the temperature of the room.

For an example, let us take the case of a block of ice at 0° F., and weighing exactly one pound. Let's melt it, then boil it away into steam.

1. B.t.u.'s required to raise temperature of ice from 0 to 32° F.
   Specific heat of ice is .5040, so $1 \times .5040 \times 32 = 16.128$ B.t.u.'s.
2. B.t.u.'s required to change ice to water at 32° F.
   Latent heat of fusion is 142.65, so $1 \times 142.65 = 142.65$ B.t.u.'s
3. B.t.u.'s required to raise temperature of water from 32 to 212° F.
   Specific heat of water is 1, so $1 \times 1 \times (212-32) = 180.00$ B.t.u.'s.
4. B.t.u.'s required to change water into steam.
   Latent heat of water is 970.4, so $1 \times 970.4 = 970.4$ B.t.u.'s.

Total number of B.t.u.'s to turn ice into steam.....1309.178

A reversal of the process would be figured in just the same way, as the recovery of 970.4 plus 142.65 B.t.u.'s would be made when the steam changed back to water, and the water back to ice again.

Here again we have information vital for engineers. Table 6 shows latent heat of several materials.

Expansion as the Result of Heat Application. Most materials expand upon the application of heat. While we shall have frequent need

TABLE 9. MEAN COEFFICIENTS OF LINEAR EXPANSION FOR VARIOUS SOLIDS PER DEGREE FAHRENHEIT TEMPERATURE.

Material	*Coefficient*	*Material*	*Coefficient*
Aluminum, wrought	.0000128	Steel,hard	.0000073
Brass	.0000104	medium	.0000067
Brass wire	.0000107	soft	.0000061
Bronze	.0000101	Tin	.0000117
Copper	.0000093	Zinc, rolled	.0000175
German Silver	.0000102		
Glass	.0000047		
Gold	.0000083		
Graphite	.0000044		
Gutta Percha	.0003322		
Iron, cast, gray	.0000059		
wrought	.0000067		
wire	.0000069		
Lead	.0000159		
Nickel	.0000070		
Paraffin	.0001547		
Platinum	.0000050		
Platinum-Iridium 15%	.000045		
Silver	.0000107		
Steel, cast	.0000061		

YOU HAVE *No Competition* WHEN YOU SELL THE Dutch Oven RANGE

1. Into the oven goes our 4 lb. roast, complete with vegetables, fruit, potatoes and an apple pie!

2. Then we light the oven, set the temperature control at 450° and the Timer at only 45 minutes. And then - to the movies. The gas will automatically shut off at 45 minutes—while the dinner continues to cook *on retained heat.*

NATIONALLY ADVERTISED IN—
- SUCCESSFUL FARMING
- GOOD HOUSEKEEPING
- BETTER HOMES AND GARDENS

THE ONLY RANGE THAT COMPLETES THE COOKING ON RETAINED HEAT *WITH THE* GAS AUTOMATICALLY *TURNED OFF!*

Tell Your Customers How to Cook a Complete DUTCH OVEN Meal With Only 2 Minutes of Their Time!

It's different, this Dutch Oven Range—it completes the cooking with the gas automatically turned off!

Imagine a range that uses only 10 minutes of gas for every hour of oven cooking time—that requires only 2 minutes of time for cooking a complete meal—that shuts itself off automatically and *continues cooking.* It's amazing—and it's exclusive—only the Dutch Oven Range can do it.

3. Inside the glistening white Dutch Oven, the dinner finishes cooking with the gas turned off, then remains hot until dinner time, all without further attention.

Sell the DUTCH OVEN to your customers! Get a bigger percentage and dollar profit for yourself! Mail the coupon NOW for full details!

Dutch Oven GAS RANGES

COMPLETE THE COOKING WITH THE GAS AUTOMATICALLY TURNED OFF

GLOBE AMERICAN CORP.
Dept. BPS—Kokomo, Indiana

Rush your FREE FACT book about Dutch Oven Ranges.

Name .....

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City ..... State .....

of referring to Table 8, we should memorize one last law which applies to gases, known as "The Law of Charles." It is:

> "The volume of a perfect gas at a constant pressure is proportional to its absoluate temperature."

An Example of the Law of Charles. Let's see just how this law works out. We will take 10 cu. ft. of air at 30° F. and heat it to 100° F. What would its volume then be?

If we put the Law of Charles into a formula it would look something like this:

$$\frac{\text{The initial volume}}{\text{The ultimate volume}} = \frac{\text{The initial absolute temperature}}{\text{The ultimate absolute temperature}}$$

Or, in algebraic form: $\frac{V}{V_1} = \frac{T}{T_1}$

Substituting values, we have:

$$\frac{10}{V_1} = \frac{30 + 459.72}{100 + 459.72}$$

$$\frac{10}{V_1} = \frac{459.72}{459.72}$$

$$489.72V_1 = 5597.2$$

$$V_1 = 11.43 \text{ cu. ft.}$$

We have again skimmed the surface but if we understand the general principles which we have covered we have laid the foundation for an understanding of much that is to follow. It is a long trek from those ancestors of ours first discovering how to make a fire to warm their calves and cook their meals, but it is the way that man has had to travel in arriving at his present-day understanding of the intricate processing of metals and many other materials.

Now I shall say goodnight, but you must yet study the question

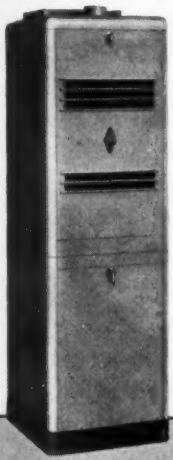
TABLE 10. MEAN COEFFICIENTS OF EXPANSION FOR VARIOUS LIQUIDS PER DEGREE FAHRENHEIT TEMPERATURE

Liquid	*Mean Coefficient of Cubical Expansion*	*Notes*
Alcohol, methyl	.001433	From 32° to 212°F.
Benzine	.001385	From 51° to 177°F.
Butanes	.000908	From 0° to 50°F.
Butanes	.00118	From 50° to 100°F.
Chloroform	.001399	From 32° to 145°F.
Ether	.002150	From 5° to 100°F.
Olive oil	.000742	
Propane	.001316	From 0° to 50°F.
Propane	.00174	From 50° to 100°F.
Sulphuric acid	.000489	From 32° to 86°F.
Turpentine	.001051	From 16° to 222°F.
Water	.00025	From 32° to 212°F.

NOTE: Sources of information for the foregoing tables are *Handbook of Chemistry and Physics, 23rd Edition; The Mechanical Engineers' Pocketbook, 8th Edition; 1940 American Gas Catalog and Handbook; Handbook*—BUTANE-PROPANE *Gases, Revised Second Edition; Burner Equipment For Butane, Eclipse Fuel Engineering Co.; Fuels and Their Utilization. By A. R. Carr and C. W. Selheimer.*

In the Old Phone Cranking Days

Payne WAS MAKING GAS HEATING NEWS . . . AND SINCE 1928 HAS LED IN L. P. G.



"No substitute for experience" has been said millions of times – but applied to the relatively young L. P. Gas Industry, it has special importance. ☆ For it's easier to sell L. P. G. heating equipment when your customers know the company behind it...and it's safer to build your load on reliable PAYNEHEAT. Time-proven...double-tested... custom adjusted, PAYNE'S 69 styles and sizes of heating equipment permit you to fit any heating need *exactly.* ☆ Dealers: for interesting information, write J. H. Keber, Sales Manager. Please mention this advertisement.

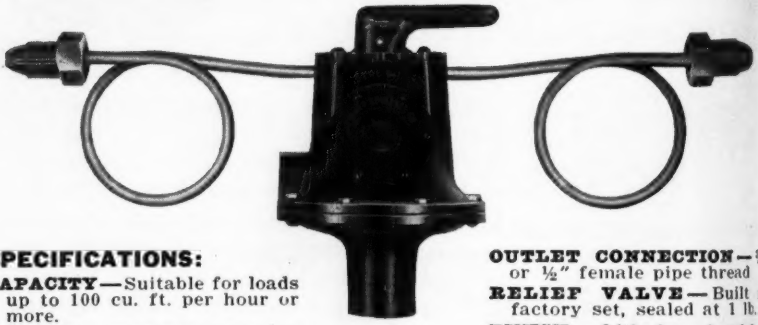
Above: PAYNE *Floor Furnace. Also: Sentry Forced Air Unit, Zoneair Unit, Duplex Furnace, Modern Console, Gravity Unit, Spacesaver Unit and Industrial Units.*

PAYNEHEAT

MORE THAN A QUARTER-CENTURY OF GAS SPECIALIZATION

Payne Furnace & Supply Co., Inc., Beverly Hills, California

NEW! FISHER Type 941



SPECIFICATIONS:

CAPACITY—Suitable for loads up to 100 cu. ft. per hour or more.

SETTING — 11" Water Column at 30 cu ft. per hour. 100 lbs. inlet.

INLET CONNECTION—Standard Male POL or other connections.

OUTLET CONNECTION—¾" or ½" female pipe thread

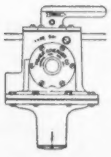
RELIEF VALVE—Built in factory set, sealed at 1 lb.

FINISH — Lithoform hand lacquer finish.

NET WEIGHT — 5½ lbs.

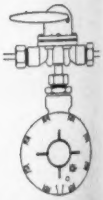
Listed as Standard by Underwriters Laboratories.

A *Compact* UNIT



Type 941

Compare Fisher Type 941 "All-In-One" unit with conventional assemblies! Extremely compact . . incorporates all parts of old assemblies in one unit. All potential points of high pressure leakage eliminated. Operation and installation greatly simplified.



Conventional Type

"All-In One" REGULATOR FOR TWO DRUM MANUAL THROW OVER CONTROL . .

● Here's the regulator you — and your customers — have always wanted. It combines Regulator, Throw-Over Manifold, Safety Relief Valve, Pigtails — all the essentials of old, conventional assemblies — in one compact unit.

This distinctive Fisher design cuts installation costs — eliminates several potential points of high pressure leakage — simplifies installation — low in upkeep costs — neat in appearance—extremely compact and dependable.

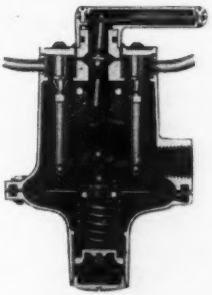
REGULATION . . Type 941 features accuracy of regulation, outstanding capacities. Expertly engineered, thoroughly tested.

THROW-OVER MANIFOLD . . Fully enclosed in regulator body. Maintains tight shut-off on reserve cylinder. Throw-Over handle points to supply cylinder. Valve discs accessible by removing pigtails.

SAFETY RELIEF VALVE . . Built in, diaphragm operated, spring actuated. Factory set, sealed at 1 pound. Screened, bug proof vent.

PIGTAILS . . Inlet adaptors silver soldered to pigtails, eliminates points of leakage. Held in place by steel cap, 2 screws. Easily removed. Pigtails any shape as specified.

Send for Bulletin 42DA — completely describes, prices, the new Fisher Type 941 Regulator.



Type 941, Sectional View

FISHER

GOVERNOR COMPANY
928 Fisher Building
MARSHALLTOWN, IOWA

below, write out what you believe to be the correct answers, and then turn to Page 122 to check yourself.

•

Questions on Chapter 3

1. Define heat.
2. Define temperature.
3. Define a B.t.u.
4. What are the three methods of heat transmission ?
5. Define internal conduction.
6. What would the heat leakage be per hour per degree F. temperature differential through a layer of glass wool 1 in. thick, 4 ft. long, and 5 ft. wide?
7. A steak is 3 in. away from a broiler burner. It is desired to double the amount of heat it is receiving. How close should it be to the burner?
8. Ignoring all losses, how many B.t.u.'s will be required to raise the temperature of 1000 lbs. of soft steel 1000°F.?
9. How many B.t.u.'s will it take to melt 500 lbs. of lead, the starting temperature at 80°F.?
10. The pressure on 500 cu. ft. of air is kept constant and the temperature is raised 500°F. The starting point is 90°F. What is its volume at the higher temperature?

(Chapter 4 of THE BOTTLED GAS MANUAL *will appear in the October issue of* BUTANE-PROPANE *News.)*

◆ ◆

Orlando Helling is LP-Gas Dealer in Union, Mo.

According to a recent announcement, Orlando Helling has established an agency for butane gas in Union, Mo. The new company will serve all sections of Franklin county.

Louisiana Dealers Discuss Industry Problems

At the June 27 meeting of the Louisiana Butane Dealers Association in Baton Rouge, La., two problems of special importance were considered.

One was the need for a State appropriation to provide for the enforcement of the State Act regulating the liquefied petroleum gas industry in Louisiana.

The second concerned insurance problems of the dealers. These were discussed at some length and a definite program was arranged as the result of the attendance at the meeting of representatives of several insurance companies.

A plan of procedure was agreed upon whereby the office of W. F. Thomas, director of the gas division of the Public Service Commission and the dealers were to furnish such information that the insurance companies might request in order to permit them to draw exact conclusions about current insurance problems.

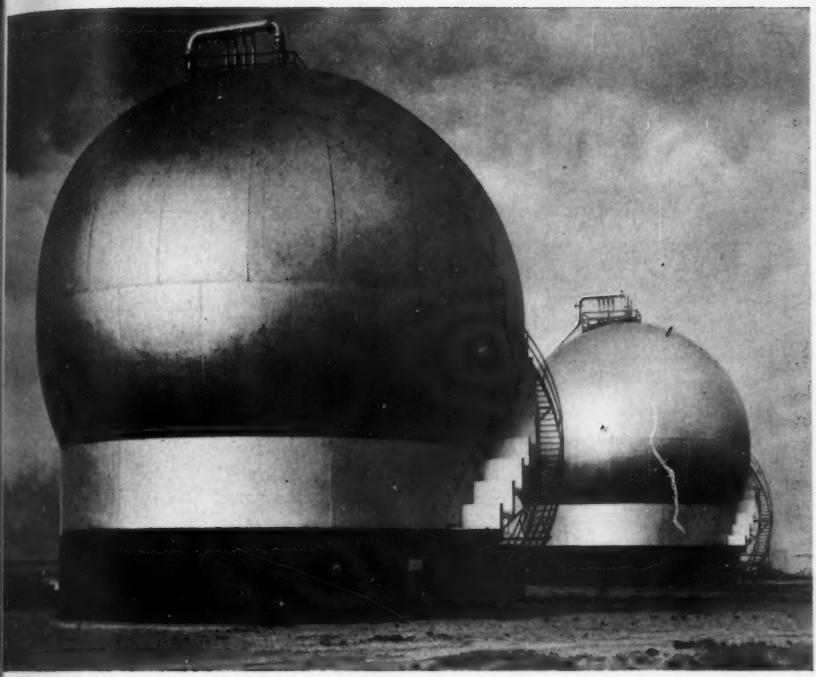
It is believed that as a result of this meeting complete coverage for LP-Gas concerns will soon be made available.

◆ ◆

Pittsburgh Equitable Meter Co. Buys Larsson Tool Works

President W. F. Rockwell, of the Pittsburgh Equitable Meter Co., announces that his firm has acquired the assets of the Larsson Machine Tool Works, of Berkeley, Calif. This acquisition provides the Pittsburgh firm with a modern self-contained tool plant fully equipped to manufacture dies, tools and special equipment.

It was stated that the present business would be continued and that these additional facilities would also be utilized for experimental work on a number of new products which are under development.



Modern BUTANE Storage

Presented above are two Wyatt-built spheres . . 10,000 barrel capacity, 95 pounds working pressure . . . . being used for Butane storage in a polymerization plant in the Texas Panhandle. They're the last word in modern, safe, economical pressure storage.

Skid tanks, Truck tanks, Bulk storage and underground systems for commercial and domestic use.

Wyatt's

WYATT METAL & BOILER WORKS HOUSTON AND DALLAS TEGAS

Tubing Sizes Are Important To Gas Installations

SIZES of copper tubing that should be used for various installation gas loads, and lengths of gas supply lines, are continually needed by distributors and dealers in the LP-Gas industry.

To provide a convenient reference for service and installation men, the Shellane Department* of Shell Oil Co., Inc., has prepared Table No. 1 to show the recommended size of copper tubing to be used for gas loads from 10,000 B.t.u.'s to 200,000 B.t.u.'s per hour (4 to 79 cu. ft.) and gas supply lines from 10 to 150 feet long.

To use the table, it is only necessary to estimate the peak or maximum gas consumption (either in B.t.u. or cubic feet per hour) of the appliances to be installed, and determine the length of gas supply line necessary. The recommended copper tubing size for the specified conditions is shown at the intersection of the "gas load" column and the "gas supply line" line.

For example, assume a distributor has a restaurant installation for which a six-burner, one-oven, commercial range, and a 30-gallon automatic water heater must be installed. The

* This table and instructions first appeared in *The Microphone.*

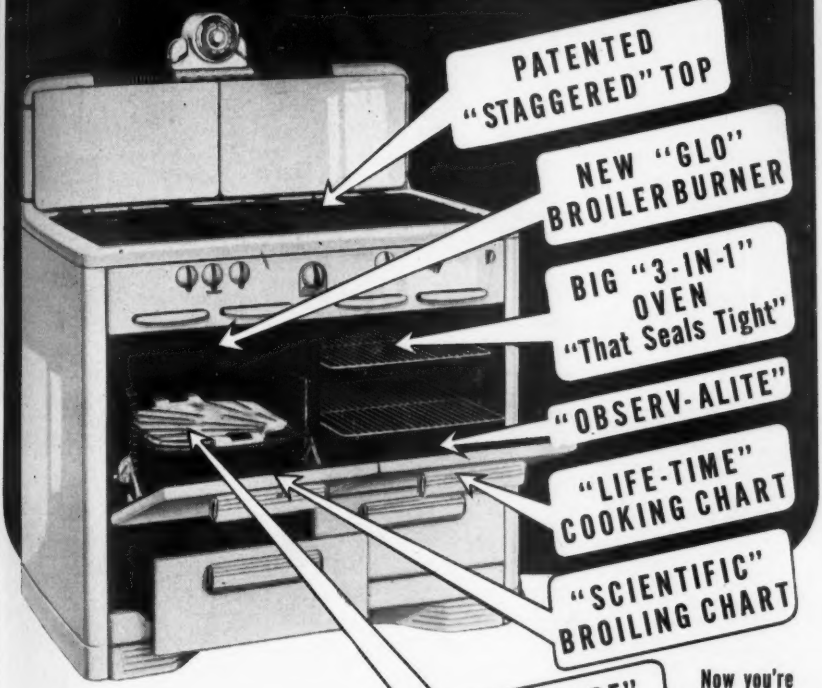
TABLE 1.

O. D. Size of Copper Tubing—Type "K" Soft Drawn

Gas Supply Line—Length in Feet	Gas Load in B.T.U. Per Hour							
	10,000	20,000	40,000	60,000	80,000	100,000	150,000	200,000
	Gas Load in Cubic Feet LP-Gas Per Hour							
	4	8	16	24	31	39	59	79
10	1/4"	5/16"	1/2"	1/2"	1/2"	5/8"	5/8"	3/4"
15	5/16"	3/8"	1/2"	1/2"	5/8"	5/8"	3/4"	3/4"
20	5/16"	3/8"	1/2"	5/8"	5/8"	5/8"	3/4"	3/4"
25	5/16"	3/8"	1/2"	5/8"	5/8"	5/8"	3/4"	3/4"
30	3/8"	3/8"	5/8"	5/8"	5/8"	3/4"	3/4"	7/8"
40	3/8"	1/2"	5/8"	5/8"	5/8"	3/4"	7/8"	7/8"
50	3/8"	1/2"	5/8"	5/8"	3/4"	3/4"	7/8"	7/8"
75	1/2"	1/2"	5/8"	3/4"	3/4"	3/4"	7/8"	1"
100	1/2"	1/2"	5/8"	3/4"	3/4"	7/8"	1"	1"
150	1/2"	5/8"	3/4"	3/4"	7/8"	7/8"	1"	

NOTE: Bends must be made of sufficient radius to avoid reducing cross-sectional area.

EXCLUSIVE FEATURES SELL ROPER GAS RANGES



One big reason for the nationwide popularity of Roper B-P Gas Ranges lies in the many EXCLUSIVE FEATURES offered. Your sales story on Roper has more appeal. You have more to talk about, more to offer. And that means a lot to you.

Now you're cooking with GAS

GEO. D. ROPER CORPORATION

GENERAL SALES OFFICE AND PLANT: ROCKFORD, ILLINOIS

ROPER GAS RANGES FOR ALL GASES INCLUDING LIQUEFIED PETROLEUM GAS

range will be located 25 feet from the installation, and the water heater an addition 20 feet beyond.

The distributor estimates the peak consumption of the range as 160,000 B.t.u. (20,000 B.t.u. for each top burner, and 40,000 B.t.u. for the oven). The water heater will consume an additional 30,000 B.t.u. per hour at peak rating. Hence, the first 25 feet of gas supply line must supply both the range and the water heater, a total of 190,000 B.t.u., and the remaining 20 feet only the 30,000 B.t.u. required by the heater. From the table, we select the "gas load" column for 200,000 B.t.u. as being nearest the desired maximum consumption, and on the line for 25 feet of supply line, we find that ¾ in. O.D. copper tubing will be required from the installation to the range.

For the additional 20 feet to the water heater: on the line for 20 feet of gas supply line, we note that ⅜ in. O.D. tubing is required for 20,000 .t.u. per hour, and ½ in. O.D. tubing for 40,000 B.t.u. per hour. The larger size should be selected to provide ample capacity. The installation then would be made as follows: 25 feet of ¾ in. O.D. tubing from the installation to the range and ½ in. O.D. tubing from the range to the heater.

The tubing sizes shown in the table are outside diameter. The inside diameter, or "nominal" size, is approximatey ⅛ in. smaller. Tubing sizes have been calculated to include the customary number of fittings and bends. Be careful to make bends with sufficient radius to avoid reducing the cross sectional area of the tubing, as any kinks or restrictions seriously reduce the capacity of the tubing. When purchasing tubing, it is recommended that "type K—soft drawn" be specified.

Members of the Arkansas Butane Dealers Association held an old-time picnic in a beautiful setting at Jennings Lake, near Little Rock, Ark., on July 26. A service school was held in the morning.

A NOTED MEMBER OF A FAMOUS FAMILY

SINCLAIR LP-GAS

(Butane and Propane)

Sinclair LP-Gases are made by experienced workmen in modern Sinclair plants. Just as with Sinclair Gasoline and Motor Oil, Sinclair Butane and Propane have the same high quality that has given Sinclair products national acceptance and leadership. Years of experience and research makes Sinclair LP-Gas the finest liquefied petroleum gas available.

For a dependable, co-operative source of supply call on

SINCLAIR PRAIRIE OIL COMPANY

SINCLAIR BUILDING TULSA, OKLA.

DESIGNE
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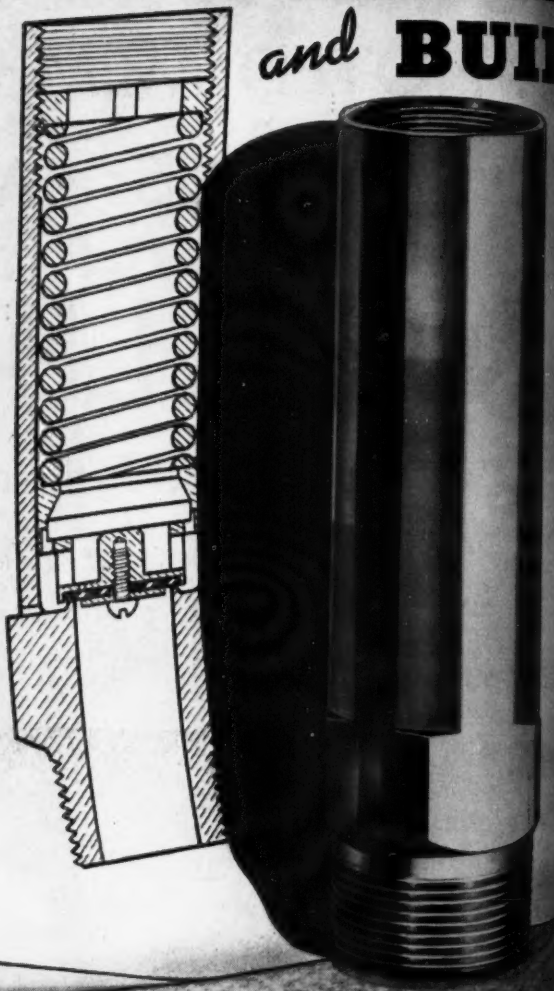
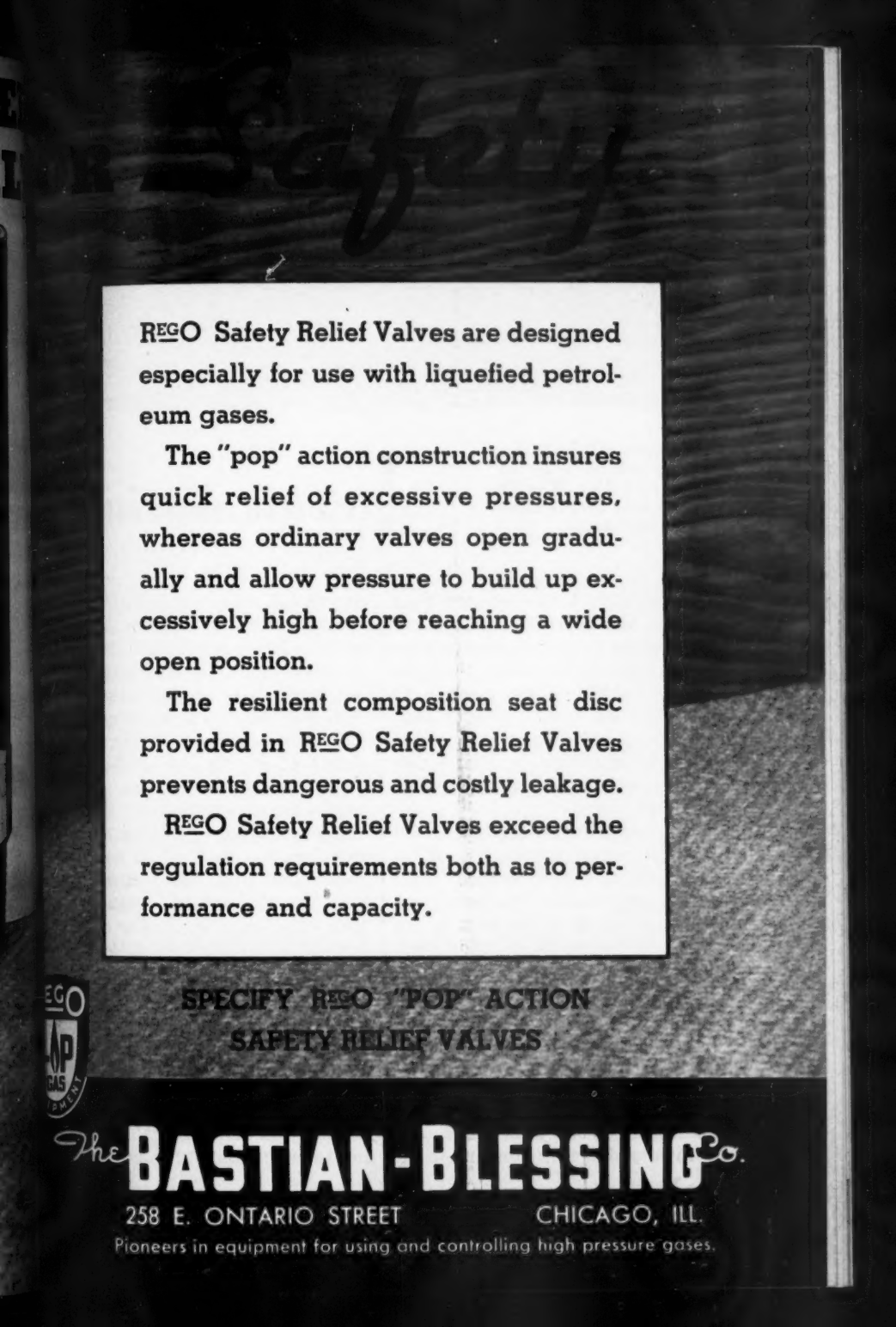


REGO
SAFETY VALVES


REGO Safety Relief Valves are designed especially for use with liquefied petroleum gases.
The "pop" action construction insures quick relief of excessive pressures, whereas ordinary valves open gradually and allow pressure to build up excessively high before reaching a wide open position.
The resilient composition seat disc provided in REGO Safety Relief Valves prevents dangerous and costly leakage.
REGO Safety Relief Valves exceed the regulation requirements both as to performance and capacity.
SPECIFY REGO "POP" ACTION SAFETY RELIEF VALVES
The BASTIAN-BLESSING Co.
258 E. ONTARIO STREET CHICAGO, ILL.
Pioneers in equipment for using and controlling high pressure gases.

These are all butane-equipped trucks — 25 of them — of the Riske Trucking Co., Sacramento, California.

This Business

"A CHAIN is no stronger than its weakest link", so they say. Applied to butane engine conversions this could mean that the resultant engine performance is no better than the functioning of each individual coordinate—the ignition system, the carburetion, the engine compression, manifolding, water circulation, etc.

Butane as a motor fuel, with all of its inherent possibilities, offers the installation and service engineer an opportunity to work out and discover something new in its application; something that will add to the ever increasing usefulness of butane. The adaptation of this finest of all motor fuels, the conversions of gasoline engines to butane, has hardly reached the stage of "standardized installation practice" for all engines or of any one make of engine. It is still necessary to consider each conversion as a special case, subject to certain modifications of engine design to obtain best results. Until manufacturers offer a complete line of engines designed for butane, each job, will of necessity, require certain engineering treatment. Hundreds of highly successful butane installations are turning in record performances testifying hourly to the advantages of butane and what can be expected of a conversion well done. To the operator considering the use of butane on his own equipment or to the dealer of butane equipment maintaining an installation and service department, the following remarks, letter and photographs may be of special interest.

What is meant by a butane engine installation? Strangely, the popular conception is that a butane installation is almost entirely a matter of mounting the carburetor,

By E. A. STRATMAN
Sales Engineer,
Ensign Carburetor Co.,
Huntington Park, California

utane Conversions

heat exchanger, filter and a few water lines.

Actually, the carburetion is no more important than the compression or ignition and a butane installation properly done puts equal stress on all factors. One does not simply change from a gasoline to a butane carburetor and consider the work complete. Many fine and neat appearing carburetor installations receive severe adverse criticism when poor engine performance results directly from other causes. A careful survey of field service records over a period of years indicate nearly 90% of all service was done on other than carburetion itself, the greatest amount going for ignition which in many instances is overloaded with an increase in compression.

Perhaps the best explanation for this vast percentage of service work going for "other causes" is lack of knowledge of internal combustion engines and lack of experience in adapting butane. Unfortunately, without a thorough background in engine work the installation man learns the hard way with the result that both he and the customer pay and pay. Frequently the installation man accepts a self-imposed handicap when he underbids on the conversion in order to get the business.

In a butane engine installation or conversion it seems absolutely impossible to do both a good job and a cheap job. Judging from a study of several thousand installations throughout California and the Mid-Continent there can be no compromising on quality of materials and workmanship if the final job is to be satisfactory and enduring. Often many new parts are required, coils, condensers, sparkplugs, water pump, etc., etc., all of

which are minor items compared to the enormous benefits of butane, yet to the "price-cutter" these items are ignored at the time of installation and make a lower bid possible. It is most gratifying, however, to find those firms which are reliable and which are strong enough to survive any competition to quote prices on an honest appraisal of what is required to do the installation properly, plus a fair profit. Such firms present the case to the customer exactly as it is on a "take it or leave it basis". This is the way good jobs are done and the way good reputations are made. Operators soon learn where to go for good work and while they may pay 15 to 20% more, they are money ahead. Agricultural and fleet accounts secured on this basis benefit the operator, the industry and the supplier of equipment.

It is generally accepted that for average truck engines the following is important, variations from which depend upon conditions of each individual engine and the work it has to do.

1. Compression pressures not less than 125 lbs.
2. With increased compression ratios the load on the ignition system is greatly multiplied, often requiring high tension coils and special apparatus to obtain hot spark.
3. Colder spark plugs with increased compression are necessary; usually one range colder per ½ compression ratio rise.
4. Inlet manifolds for dry gas should be free from exhaust heat and cold as possible.
5. Water jacket temperature maintained between 160° and 180°F. at all times, often requiring radiator shutters or thermostats.
6. Lighter grade oil may be used with butane or any dry gas. Usually one S.A.E. rating lighter.
7. Air-fuel mixture ratios for butane around 13.1 for load and 14.5:1 for cruising.
8. Only approved tanks and fittings to be used for all installations. Connections and lines to be carefully installed, bearin mind the effects of vibration and wear.

The manner in which the above and other details in installations are carried out is an extremely important phase of the business. Strictly speaking, this is an engineering problem, requiring in a considerable measure the same degree of skill and aptitude of an engineer. To take the guess work out of the butane installation requires, as stated before and well worth repeating, a sound knowledge of fundamental principles of butane and automotive engineering in order to appraise the job beforehand and to quote intelligently. This, plus a conscientious desire to do the work in the best possible manner. Obviously, redesigning an engine to burn butane, which in effect, is exactly what is attempted every time a butane installation is made, is an engineering project of the first degree.

By "redesigning the engine", the man responsible for the success or failure must know engine design and combustion characteristics of gasoline and dry gas fuels so that he can recognize the need for certain modifications of design and be competent to direct or carry out

ROADMASTER FILTER

for Butane and Propane

30% Larger ... Takes Out All Dirt

ROADMASTER FILTER
RF-7—List Price, $8.25

NOW, FOR THE FIRST TIME, a super-efficient butane-propane filter, engineered to fit every conceivable need! New improved Roadmaster filter-element strips gas of all tank-scale, gum, sludge, water, oil and other impurities; assures maximum regulator efficiency in every application. APPROVED BY THE INDUSTRIAL ACCIDENT COMMISSION OF THE STATE OF CALIFORNIA.

Low Cost — Easily Installed

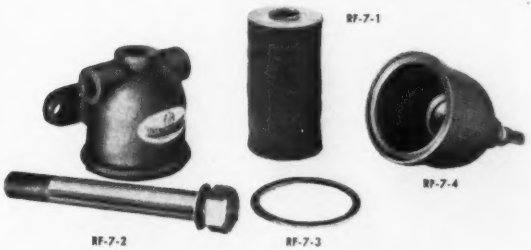
You pay for a Roadmaster butane-propane filter in lowered efficiency and needless service costs when you use butane or propane direct from the tank. Every truck, bus, tractor, and stationary engine needs this new Roadmaster Filter. Equally essential in domestic heating and cooking installations.

Tested to Stand 1,000 Pounds Hydrostatic Pressure!

Ruggedly built throughout, with all castings made of genuine "A" Bar Engineering Gray Iron, the compact new Roadmaster Filter is constructed to withstand hydrostatic test pressures up to 1,000 pounds per square inch. No other filter you can buy has this tremendous reserve strength. No other filter gives you, at no extra cost, this positive insurance of safety and enduring, trouble-free service. You simply can't go wrong with a Roadmaster!

Easy to Keep Clean — Requires Little Attention

Put a Roadmaster Filter in your fuel line and you KNOW ONLY CLEAN GAS is going through the regulator. Open the handy valve at the bottom of the filter and accumulated dirt instantly blows out. Only at long intervals is a change of filter element needed. Then less than three minutes handles the job, and the cost is only $1.50.



WRITE for Prices and Specifications TODAY!

Detailed Specifications and liberal dealer discount schedule, mailed promptly on request.

INSURE YOURSELF PEAK EFFICIENCY in every butane-propane operation you control. Complete ROADMASTER FILTER, ready to install, lists at only $8.25. ORDER YOURS TODAY.

- RF-7-1 Filter Element; Heavy Felt Washers, enclosing fine brass screen; List Price, $1.50.
- RF-7-2 Connecting Bolt.
- RF-7-3 Asbestos Gasket.
- RF-7-4 Blow-out Valve.

2316 So. Flower Street
LOS ANGELES

MANUFACTURED BY
ROADMASTER PRODUCTS COMPANY

2236 So. Wabash Avenue
CHICAGO

the work. The qualifications set forth here for an installation man are quite strict but to the butane equipment dealer with a serious interest in his business and industry, he will encourage his installation and service personnel to study automotive engineering and the behavior of butane.

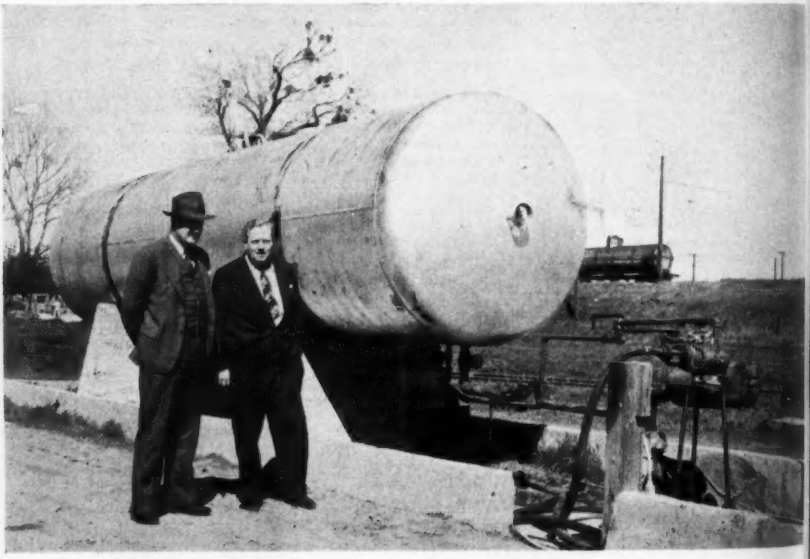
Many splendid examples of correctly made butane installations are pounding over our highways every hour of the day and night. The accompanying photographs show the Riske Trucking Co.'s butane operations in northern California, comprising more than 25 trucks in constant operation since 1936. Large, twin storage tanks, pumps, meters and a complete shop are maintained by W. H. Riske at headquarters at Sacramento. The following letter from Mr. Riske to the Ransome Co., Emeryville, Calif., is evidence of good performance and typical of results from butane conversions well made:

"Gentlemen:

"Referring to your request for information relative to operation of our fleet of trucks using butane gas and Ensign equipment, we have been operating on butane for the past four years with the following equipment using this fuel.

	Truck	Engine Displacement
12	International C-60	.....360 cu. in.
8	GMC T-46.....	400 cu. in.
1	GMC T-61.....	400 cu. in.
2	GMC T-23.....	229 cu. in.
1	GMC 252.....	228 cu. in.
1	Reo Buda	428 cu. in.
25	Trucks	

"The loads hauled by the above equipment are as follows:



R. F. Murphy, Sacramento, Calif., district manager of Ransome Co.; and W. H. Riske, who converted 25 heavy-duty units to butane.

"Faster than any Pump we have ever used"

The Southeastern Natural Gas Corporation of Miami, Fla., needs speedy service to supply its mushrooming list of customers. And the Moyno L.P.G. Pump, fitted to the chassis of the streamlined tank truck shown below, fills cylinders with propane "two or three times faster than any pump ever used before."

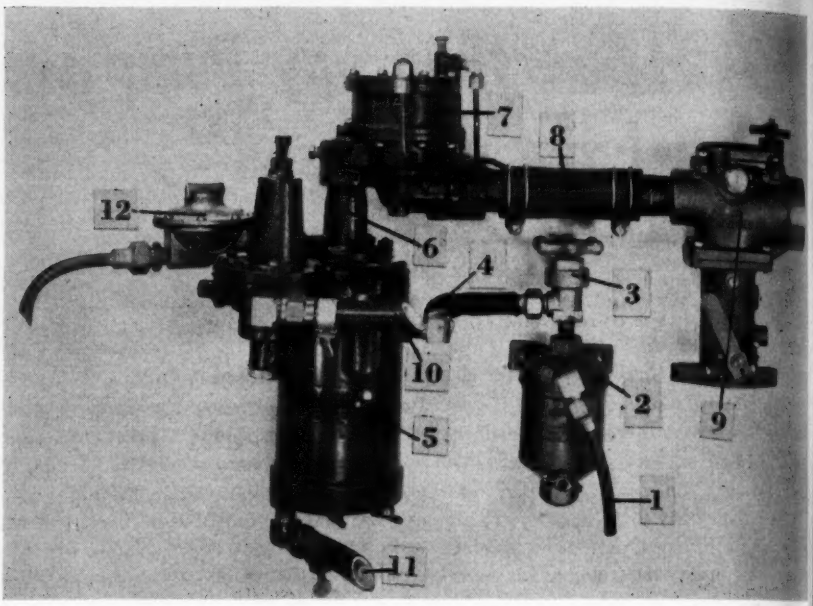
More than 2,000,000 pounds of gas have been handled since the pump was installed last November. It has performed daily with only minor adjustments. As a result, orders for four more R & M Moyno Pumps have been received.

Investigate the new Moyno L.P.G. pump for *your* butane-propane handling job. It is revolutionary in principle . . . valveless, self-priming, positive in displacement, delivering uniform flow without turbulence or vapor lock. Write today for descriptive folder and prices, specifying whether you handle butane or propane or both.

L.P.G. MOYNO PUMPS

ROBBINS & MYERS, Inc.

MOYNO PUMP DIVISION SPRINGFIELD, OHIO



1—Liquid butane from tank.
2—Liquid butane filter.
3—Liquid butane shut-off valve.
4—Liquid butane to vaporizer.
5—Butane vaporizer.
6—Butane gas to fuel regulator.
7—Fuel regulator.
8—Sub-atmosphere gas line to carburetor.
9—Straight butane carburetor.
10—Hot water from engine to vaporizer.
11—Water return to engine (suction side of pump).
12—Relief valve. (Not used on Riske Trucking Co. installations.)

This shows the arrangement of Ensign butane equipment as used on a typical automotive installation and similar for most part to that used on the trucks of Riske Trucking Co., of Sacramento, Calif.

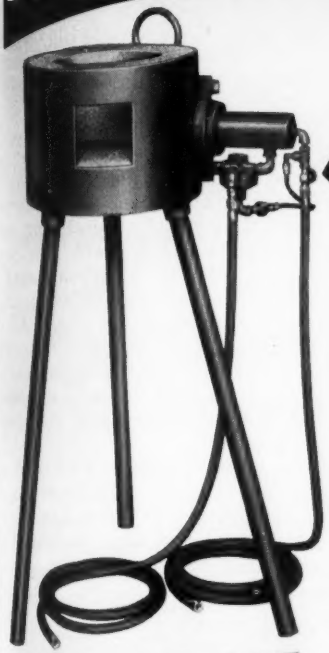
12 International C-60 Tractors—20 ton pay load.
7 GMC Tractors — 20 ton pay load.
4 Trucks and Trailers—22 ton pay load.
1 Small Semi—12 to 13 ton pay load.
1 Dump — 3½ tons (rice hulls).

"During 1939, the heavy trucks operated at an average of 5.7 miles per gal. on butane as against a previous average of 5.0 miles per gal. on gasoline. The Model 252 GMC panel averages approximately 16 miles per gal. on butane; the small GMC Semi averages 7.2 miles per gal. The average for 1939 of our 21 pieces of heavy equipment was 47,000 miles each.

"The AC 252 GMC panel averages 105,000 miles annually on a daily haul from Sacramento to Redding, Calif., and return. It has been operating three months—one month on gasoline and two months on butane. It averages 20 gals. of butane as against 26 gals. of gasoline per trip.

"We change oil at 5000 miles on all equipment as against 2500 miles when using gasoline.

RANSOME Rivet Heater Features ONE VALVE Control



Lined with heat refractory; legs are removable; carrying ring for portability.

THE RANSOME RIVET HEATER was designed specifically to overcome the handicap of unskilled operators in shipyards, steel fabricating plants and many other defense industries. ☆ The Ransome Rivet Heater operates on all gases and the correct proportion of air and gas is controlled automatically by a single valve. The correct proportion is maintained even in the face of varying air pressures; this eliminates the major cause of scaling.

RANSOME COMPANY

Designing and Constructing Engineers

4030 HOLLIS STREET · EMERYVILLE, CALIFORNIA

Ransome

instances through the use of high grade oil filter.

"There is an approximate 35% maintenance saving through the use of butane, mainly in ring replacement, valve grinding, and reboring. We find it necessary, at present, to grind valves at approximately 35,000 miles, replace piston rings at 75,000 miles up, re-sleeve Internationals at 100,000 miles up, and rebore GMC's at 100,000 miles up.

"One of our International C-60's has traveled 116,000 miles on the same rings and is still economical on oil. A C-35 International which was on the Sacramento-Redding run, and replaced three months ago by the 252 panel, traveled 260,000 miles in two years and nine months. For the first 75,000 miles this unit was operated on gasoline and the balance on butane. The average fuel consumption on gasoline was 42 gals. per trip and on butane, 32 gals.

"We have gained a noticeable improvement in power and performance on all equipment as compared to performance on gasoline. We run a number of GMC trucks and tractors between Sacramento and Petaluma, Calif., a distance of 93 miles, and find our running time 30 minutes less each way on butane. Our equipment, on conservative analysis, is operating one-half gear higher under all conditions than when using gasoline.

"Yours very truly,
"W. H. Riske"

Savings in the use of butane warrant an investment sufficient to do the job correctly which investment is usually amatorized in less than six months. Summarizing, the advantages of butane are not only in reduced costs of fuel per gallon, but, in addition, reduced engine maintenance through absence of carbon and dilution, longer lubricating oil life, plus increased pay-load and faster transportation.

Arizona Will Be Easy On Non-Residents Using Butane

Arizona's recently enacted legislation determining a use fuel tax upon LP-Gases for automotive units provided that non-residents passing through the State with converted motors must secure permits and post bonds before they could secure fuel.

To clarify the situation in the interest of the public, Harold W. Smith, president of the American Liquid Gas Corp., Los Angeles, requested from the highway department a statement regarding the interpretation of the law and its enforcement. In reply he received the following self-explanatory letter, dated July 21, from E. C. Corbell, chief clerk, Arizona Highway Department, Phoenix:

"This refers to your letter of July 16 concerning butane being purchased in this State by tourists passing through the State.

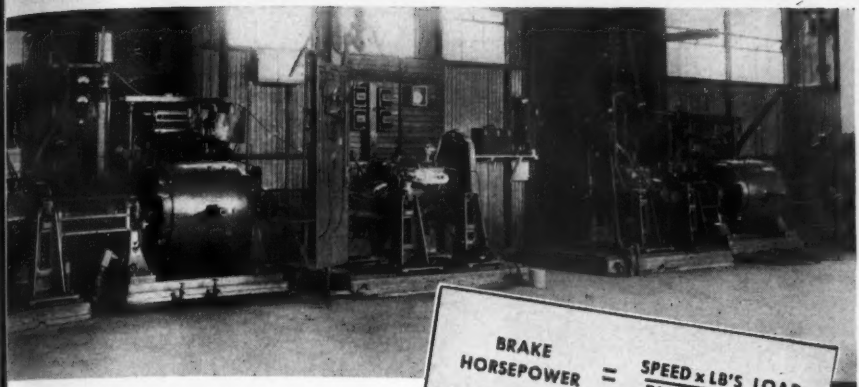
"We have instructed our checking stations not to apply the use fuel tax law upon such vehicles. We have also notified the known sellers of such fuel that they may place it in the fuel tanks of tourists' vehicles without such vehicles carrying use fuel permits. In such cases, however, the seller must collect the five cents per gallon tax and remit it to this division."

◆ ◆

LP-Gas-Powered Truck Hauls Stock for Bechis-Smith Firm

The Bechis-Smith Warehouse, Oakdale, Calif., has announced the purchase of a large GMC truck, powered with butane, which will haul livestock in that community. It is the largest truck manufactured by GMC and with the trailer has the capacity of a railroad car of cattle.

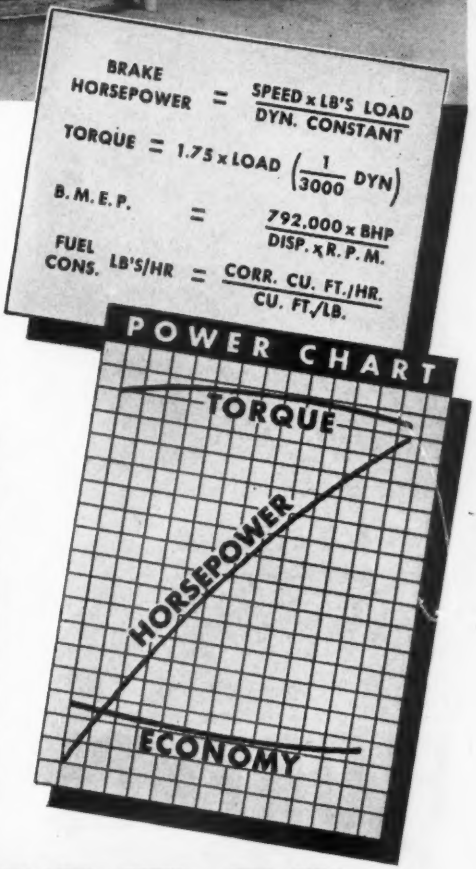
A 1000-gal. butane tank has been installed outside the city limits for the purpose of fueling the truck.



ENSIGN DYNAMOMETER LABORATORY

Tools to WORK WITH

To take the guess work out of carburetion requires not only a well equipped engine dynamometer laboratory but air and fuel flow devices calibrated to 1/1000 of a unit. Yet, this expensive equipment is utterly useless without trained engineering personnel. • At ENSIGN the engine manufacturer and engine users find an abundance of accurate testing apparatus and a staff of competent engineers. • For 30 years ENSIGN has specialized in carburetor building. Constant research and testing results in the development and application of new and improved principles—those features you enjoy in today's carburetion.


BRAKE HORSEPOWER = SPEED x LB'S LOAD / DYN. CONSTANT
TORQUE = 1.75 x LOAD (1/3000 DYN)
B. M. E. P. = 792,000 x BHP / DISP. x R. P. M.
FUEL CONS. LB'S/HR = CORR. CU. FT./HR. / CU. FT./LB.
POWER CHART
TORQUE
HORSEPOWER
ECONOMY

ENSIGN CARBURETOR CO., LTD.

HUNTINGTON PARK, CALIF. • DALLAS, TEXAS • CHICAGO, ILL.

Talk About BETTER Cooking—

IT SELLS !!

Florence gives you the right answer to every prospect's needs and budget in the big LPG line . . . de luxe models like this one, moderate-priced ranges packed full of features, promotion models.

It's *better cooking* that your customers are buying . . . not merely a new range! Ride hard on *that* when you're showing the new Florence LPG Ranges . . . and you'll find your sales going up.

You can talk better cooking and *mean* it when you're selling Florence . . . with feature after feature right under your hand to *prove* to your customer how much more a Florence LPG Range will do for her!

A powerful national advertising campaign in big-circulation magazines has been building a real market for you. Better get your share of it now! Write today for full information.

FLORENCE STOVE CO.

General Offices and Plant, Gardner, Mass.; *Western Offices and Plant,* Kankakee, Ill.; *Sales Offices:* 1459 Merchandise Mart, Chicago; 45 E. 17th Street, New York; 53 Alabama Street, S.W., Atlanta; 301 N. Market Street, Dallas; and 2730 16th Street, San Francisco.

FLORENCE

Gas Ranges

FOR LIQUEFIED PETROLEUM GAS

PRODUCTS

Dual Butane Manifolds

Electric and Carburetor Engineering Co., 2323 E. 8th St., Los Angeles.

Description: The Thickstun dual butane manifold is a recent development in butane manifolding in which two independent butane carburetors are mounted on one dual manifold with both carburetors working at all times. It incorporates all of the fundamental requirements found in a single butane manifold, namely, extremely cold type; large area; equal distribution and complete isolation of gases. A new balance tube design has been perfected and cast integral with this dual manifold. A few degrees difference in throttle plate angles will make no difference to engine performance, inasmuch as the extra necessary fuel to care for the leading throttle plate is drawn from the balance tube, thereby compensating for mechanical inaccuracies. The engine will give standard, single carburetor performance with one carburetor entirely cut out. Dynamometer and road tests on a 1941 Chevrolet show the following data: 24% additional horsepower; 16% better mileage; 28% faster accelleration; 14 miles per hour faster top speed.

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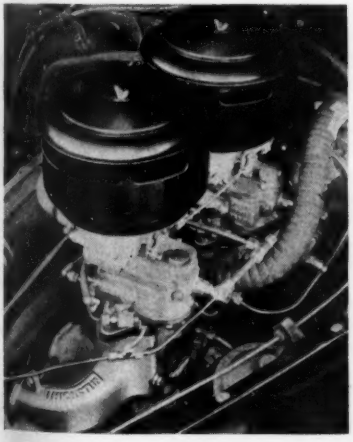


Automatic Gas Control

General Controls Co., 801 Allen Ave., Glendale, Calif.

Description: Four improvements in have been made in this gas valve, originally made to provide automatic gas heating for floor furnaces, gas furnaces, boilers and industrial application, without the use of outside electric current. The cover has been made more compact and tamper-proof; the integral pilot valve assembly has been simplified and eliminates external gas ways; the body has been made stronger by use of hi-tensile iron with seating pressures increased; binding posts are securely locked in casting to prevent turning. All necessary operating current is sup-

plied by the pilot generator, making for an all-gas installation. Available in sizes for ⅜-in. to 1½-in. I.P.S. for use with manufactured, natural and liquefied petroleum gas. For all LP-Gas installations a heavy duty pilot generator is now furnished.

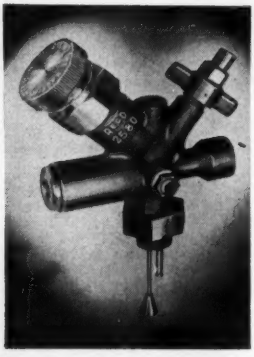
◆ ◆

Combination Valves

The Bastian-Blessing Co., 258 E. Ontario St., Chicago, Ill.

Model: RegO 2580 and 2581 LP-Gas Valves.

Description: Designed especially for use with permanently installed ICC cylinders and ASME or API-ASME aboveground containers. They are suitable for use with either flash or batch vaporization. Safety and utility features are: Shut-off valve for outlet connection; excess flow check valve for out connection; automatic quick filler valve and back pressure check valve; supplementary back pressure check valve; fuse plug; fixed liquid level gage



and vent valve; safety relief valve; variable positioning container inlet connection; and liquid eduction outlet tube. Only one connection is required in the container. The RegO 2581 Valves are also equipped with elbow outlet adapters and loose rain caps on the safety relief valve and at the fuse plug discharge.

Domestic Range

Globe American Corp., Kokomo, Ind.

Model: No. 5131 G-D.

Description: This Dutch Oven gas range is one of the 1941 models. It is equipped with an automatic shut-off, designed to turn off its own gas and keep right on cooking with "retained heat." Other features are the unique Dutch Cooker well, broiler, "minute-minder," Robertshaw oven temperature control, one giant and two standard spiral heat non-clog burners, two service drawers. Finished in all-white, triple coated porcelain enamel; chromed handles and trim.

◆ ◆

Gas Outlet

Imperial Brass Manufacturing Co., 1200 W. Harrison St., Chicago, Ill.

Model: Imperial Gas-o-let.

Description: This is a combination gas outlet box and safety shut-off valve, which is built into the wall and is similar to an electrical outlet. This new type of gas connection is designed to take the place of the old fashioned, protruding gas valve. One of the important advantages of this new unit is the greatly increased safety which it

provides. A patented locking device in the Gas-o-let prevents the gas from being turned on unless the appliance is connected. Also, since the valve can be opened only by raising the handle to a horizontal position, it is virtually impossible for it to be turned on accidentally by moving furniture against it or by knocking it with a mop or carpet sweeper. Its molded plastic cover plate may be had in two colors.

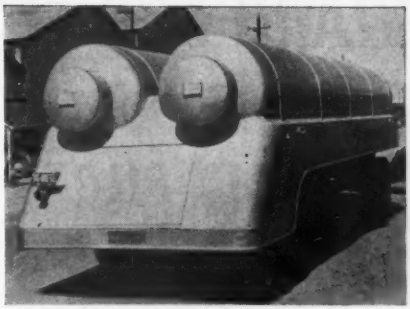
◆ ◆

Tank Truck

Wyatt Metal & Boiler Works, Houston and Dallas, Texas.

Model: Twin DeLuxe Trailer and Combination Spot Storage Unit.

Description: Tanks are twin-mounted and designed for butane-propane service. They have a total net capacity of 3000 gals. and are designed with pump and meter as an integral part of trailer to permit of transport use. Or, they can be spotted at any location for use as storage while the truck tractor is free for other use. The pump, motor and meter are completely housed in weather proof cabinet at rear. Cabinet also serves as a combination hose and tool carrier. This design permits of all-weather use with the least annoyance and waste



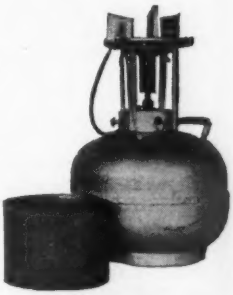
of time, and offers absolute protection for delicate meter and pump operating mechanism. The combined tank and trailer as shown in photo weighs approximately 14,000 lbs. unladen.

◆ ◆

Plumber's Furnace

Mutual Liquid Gas Co., 3811 W. Imperial Highway, Inglewood, Calif.

Description: An economical, easy to handle furnace for plumbers and metal workers. Features include: Non-warping head, adjustable burner tube and removable handle. The furnace is easily disassembled. A removable shield, either conical or straight, is available with each furnace; users may specify which is desired. Furnace head may be used on No. 11, or No. 21 cylinders. All Mutual cylinders are built to I. C. C. and existing codes for LP-Gas. All cylinders are equipped with relief valves, vapor and fill valves and 10% valve. Tear weight No. 11 cylinder approximately 18 lbs.; liquid capacity 12 lbs. Tear weight, No. 21 cylinder, 24 lbs.; liquid capacity, 20 lbs.

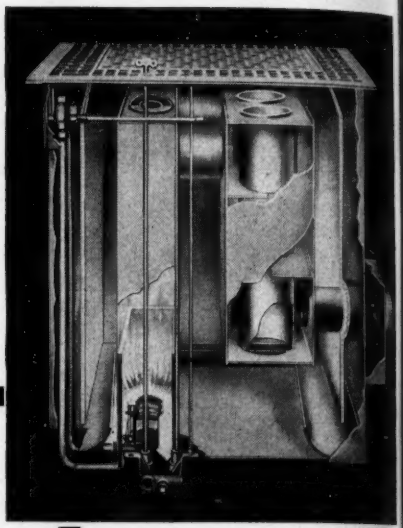


WARD *LPG* FLOOR FURNACES

with 100% SAFETY PILOT

all models

A.G.A. APPROVED!

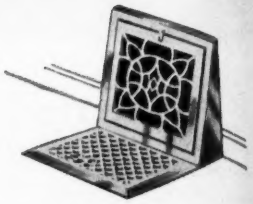


Here is the furnace to help you capture the missing ⅓ of your load that should come from *space heating.* It is unquestionably the finest LPG floor furnace we have ever built. All models factory adjusted to give top performance with *your* fuel. New improved A.G.A. approved pilot assures *100% safety.*

WARDS are the kind of dependable merchandise your customers are looking for in these uncertain times. Guaranteed for ten years, they will give a lifetime of satisfaction with the *safety* and *economy* of the gas you sell.

WARD

A dependable name in gas heating for 32 years



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WARD HEATER COMPANY, *LOS ANGELES, CALIF.*

RESEARCH

BUTANE-PROPANE *News* wishes to keep its readers informed regarding technical and practical advances concerning research, manufacture, development, and transportation in the liquefied petroleum gas field. In this column will be found a resume of recently published articles, papers, bulletins and books dealing with the industry's various phases.—Editor.

Liquid-Vapor Equilibrium Relations in Binary Systems — W. B. Kay. *Industrial and Engineering Chemistry*, May, 1941, pp. 590-594. The P-V-T-x relations at the liquid- and vapor-phase boundaries in the n-butane-n-heptane system were worked out from measurements on a series of mixtures varying in composition from pure n-butane to pure n-heptane. T-x diagrams of the coexisting liquid and vapor at constant pressure were constructed, from which data were obtained for calculating the phase-equilibrium constants. Information on the effect of the physical properties of the mixture on the phase-equilibrium constants is given by a comparison of the constants for n-butane dissolved in ethane and in n-heptane, and of those for n-heptane dissolved in ethane and n-butane.

Natural Gas Hydrates—W. I. Wilcox, D. B. Carson, and D. L. Katz. *Industrial and Engineering Chemistry*, May, 1941, pp. 662-665. Natural gases under pressure have been known to form crystalline hydrates with water. This paper gives data on the temperatures and pressures, up to 4000 lbs. per sq. in., at which three natural gases form hydrates. The phase data on hydrates of pure hydrocarbons were enlarged by the equilibrium temperatures and pressures for the hydrate formation from compressed liquid propane. The concept was introduced of handling vapor-solid equilibria in the same manner as the vapor-liquid equilibria data have been used to predict the phase relations of fluid hydrocarbon systems.

Dehydration of Natural Gas and Absorption Oil—C. S. Worley and D. E. Foster. *Petroleum Engineer*, May, 1941, pp. 46-51. Diethylene-glycol plant extracts water from natural gas —gas bubbled through hot lean oil reduces water content of absorption medium.

Useful Products from Natural Gas —F. H. Dotterweich. *Refiner*, May, 1941, pp. 57-62. Growth of the natural gasoline industry has made available increased amounts of by-product natural gas which has been marketed as a fuel and source of energy and more recently as a chemical raw material from which many useful products may be manufactured. These products include: synthetic rubber, plastics, 100-plus octane fuel, and many chemical raw materials essential in modern industry. These products which may be produced from natural gas may play an important role in the future development of our country, in that they may be used in the construction of equipment for the armed forces, and they may be used in consumer products to replace strategic metals necessary in other fields. The amount of these essential raw materials supplied by the natural gasoline and natural gas industries will depend upon the ability of the groups to recover and supply these raw materials

and to maintain and actively support research work to insure the use of natural gas for useful products of today and tomorrow. The paper was presented before the twentieth annual meeting of the Natural Gasoline Association of America, Dallas, Texas, April 23, 1941.

Properties of Hydrocarbons Found in Natural Gas—R. W. Machen. *Petroleum Engineer*, June, 1941, pp. 79, etc. A review of basic organic chemistry centered on natural gas constituents.

Characteristics of Exhaust-Gas Analyzers—J. L. Dilworth. *Society of Automotive Engineers Journal*, June, 1941, pp. 235-239. Conflicting views of experienced maintenance men on the accuracy of exhaust-gas analyzers in determining the air-fuel ratio stimulated a critical study and numerous actual tests of various exhaust-gas analyzers with a view toward securing some dependable information on the actual performance of these instruments. The tests were all conducted at Virginia Polytechnic Institute on a single-cylinder, variable-compression test engine in order to eliminate, or permit the control of, as many variables as possible. The laboratory set-up and the method of conducting the tests are explained in this paper. Six exhaust-gas analyzers were tested: two of the widely-used thermal-conductivity type, one of the hot-wire catalytic type, and one of the relative-density type, and two employing the Orsat principle. Probably the most striking thing shown is that every instrument practically ceased to function when the air-fuel ratio became leaner than 14:1. From the results of these tests it is concluded that exhaust-gas analyzers are not precision instruments, being likely to err as much as one-half of one air-fuel ratio, even under favorable conditions; and that all exhaust-gas analyzers are calibrated for regular commercial gasolines, requiring special calibration for any fuel with a different chemical composition.

Calibrating Displacement Meters on Volatile-Liquid-Petroleum Fractions—E. W. Jacobson. *Oil and Gas Journal*, June 19, 1941, pp. 48-50. The author describes a prover design for use in calibrating displacement meters on volatile-liquid petroleum fractions such as gasoline which will eliminate errors caused by evaporation, change in temperature, and entrainment of gases in the test liquid. Details are also given of a simplified commercial type of prover. This type of prover has been successfully used on an extensive meter-testing program at the Gulf Research laboratory as a part of the 25-year program of the A.S.M.E. fluid meters committee.

Resuscitation After Electric Shock—C. F. Dalziel. *Electrical West*, April, 1941, pp. 38-42. Thousands of new, inexperienced men are entering the electrical industry, helping to strengthen the national defense program. Management and seasoned employees must be responsible for their safety by stressing precautions, and knowing fully approved methods of resuscitation if an accident occurs. In this article are presented, clearly and concisely, first aid techniques for the electrical worker.

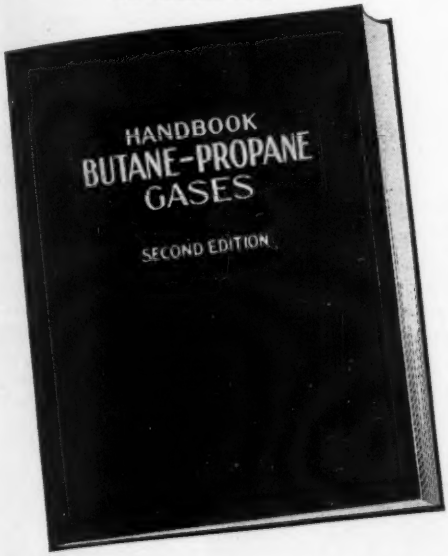
Fighting Fires with Carbon Dioxide Extinguishers — P. W. Eberhardt. *Oil and Gas Journal*, May 29, 1941, pp. 48-50. Carbon dioxide is one of the fastest extinguishing agents employed to combat fires in burning liquids or gases. In this article the various types of carbon dioxide extinguishers available, including portable, wheel-mounted and built-in systems, are discussed.

Dual Pressure Systems Serve First Cycling Plant Installed in Opelika Area—F. H. Love. *Petroleum Engineer*, May, 1941, pp. 106-112. Recently completed plant has 80,000,000 cu. ft. daily capacity — four 600-hp. compressors are designed for a maximum working pressure of 6000 lbs. Described and illustrated.

Handbook
BUTANE-PROPANE
GASES

LATEST REVISION
NOVEMBER 1938

SECOND EDITION



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BUTANE-PROPANE *News*

1709 West 8th Street, Los Angeles, Calif.

Dealer Makes Sales Kitchen Out of Waste Corner

By CRAIG ESPY

HAVE you ever thought of the many interruptions taking place on the sales floor of your store—I mean interruptions that take their toll in sales? Just take it for granted for a moment that you are on your own sales floor talking with a customer about buying a new range, butane system or some other appliance, when some friendly lodge brother enters the store.

"H'ya Joe," he says, as he clips you on the back, knocks the pencil out of your hand and jostles you toward your customer. "Excuse me," you say to the customer. "Now where were we Madam? Oh yes, it was about the oven control."

You are still working on the same customer perhaps and are just going to transfer her interest to another model of the same line for comparison purposes before making the third attempt to close, when a stock man comes along dragging a crated appliance across the floor en route to the basement. And again you see your customer's attention diverted, as with a shiver up and down her spine (you felt one too when the crate let out a loud, penetrating screech as it came into contact with a particular spot on the floor), she said she guessed she wouldn't do anything about the range today. She

R. L. Edwards in his modern "kitchen", demonstrating to Miss Betty Van Tonsaint and C. L. Donaldson, employes, how he thinks a pot of coffee should be made on an LP-Gas range.

EASY TO HANDLE CYLINDERS and APPLIANCES

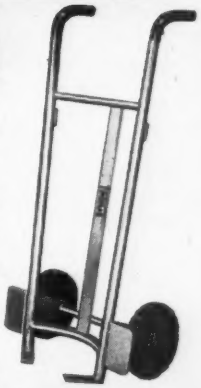
WITH THOMAS NO. 77 DOUBLE DUTY HAND TRUCK

Avoid back-breaking hand lifting. Here is a single truck to move both cylinders (up to 100-lb. capacity) and appliances, quickly and smoothly.

FEATURES: 10-IN. BALL-BEARING WHEELS and CUSHION PNEUMATIC TIRES . . . to make easier rolling on any surface and prevent damage to lawns.

WEB STRAP and WIDE FLANGES OVER WHEELS . . . give perfect support and hold home appliances rigidly to truck. Easy, one-man operation.

LOW COST, ALL WELDED, ONE PIECE CONSTRUCTION



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Cavalier GAS RANGES

Increase LPG Goodwill!

Here's a range that keeps customers *sold* on the advantages of LPG! Extra-thick oven insulation permits cooler, quicker, more economical cooking, with gas turned off 1/3 to 1/2 the time. Heat on surface units can be controlled *exactly* by special "simmer stop" handles. One-piece top and backsplasher. All LPG ranges are tested and adjusted on LPG gas before shipment. Write today for catalog.

Cavalier GAS RANGES
CAVALIER CORPORATION
341 W. FIRST ST.
CHATTANOOGA, TENN.

kind of wanted her sister Lucy to see it anyway and Lucy was ironing today and canning tomorrow so it would be several days before they could get back to town.

R. L. Edwards of R. L. Edwards Gas Appliance Co., San Antonio, Texas, was thinking of some of these things and how to overcome them when his mind turned in the direction of what would be called a hidden corner in the back of his store which was largely maintained as a sort of catch-all storage room where goods were temporarily held to be routed either to the storage room in the basement, to the sales display floor, or to the premises of the customer.

That's it, he thought—a modern appliance display and kitchen in that little-used and practically wasted corner. And by showing a kitchen I can sell kitchens!

I wish we could show you both the "before and after" pictures of this corner as is done in national women's magazines when they display a picture of an old home and beside it one of the modern version of the same home. But no one in the Edwards establishment had the least notion that even the remotest interest would ever be taken in the rough looking, hedged-in, dark corner of their store. So no pictures were taken before the remodeling was done.

Mr. Edwards thinks that many another butane dealer could salvage space for a display just like this. And his advice is to look over your premises at once with this thought in mind. Even the

This was once a waste corner in the R. L. Edwards store, San Antonio, Texas. Turning it into a modern "kitchen" has helped to avoid interruptions when talking to prospects and has increased sales.

For *Added Power* with LESS FUEL!

Install a Thickstun Butane Manifold

At least 21% more power and 10% better mileage over the standard gasoline type manifold are offered you by the Thickstun Butane Manifold.

On an International DR-50, the use of a Thickstun increased fuel mileage from 5 mpg ***without*** trailer to 5.6 mpg ***with*** trailer. On Mack trucks with Thickstun manifolds, power was increased one-half gear and operation was smoother.

(As reported in Butane-Propane News, August, 1941, pp. 74-75-76.)

Write for prices, other details, to Dept. B-9.

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3. No Restrictions
4. Proper Finning
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GOODALL

"SENTINEL" BRAND

BUTANE-PROPANE UNLOADING HOSE

Multiple plies of extra strong duck; a durable red rubber cover; and a tube that resists permeation of LP-Gas, make "Sentinel" brand the safest hose for this service. Light weight, flexible. No wires except static strand. Sizes ½" to 3". Working pressure, 200 lbs. to 350 lbs., depending on size.

GOODALL RUBBER CO. INC., Philadelphia, Pa.

New York ● Boston ● Pittsburgh ● Chicago ● Houston ● Los Angeles ● San Francisco
Seattle ● Salt Lake City ● Distributors Stocks at Intermediate Points. Mills: Trenton N.J.

GOODALL RUBBER CO., INC.
4 South 36th St., Philadelphia, Pa.
Send full information on "Sentinel" Brand L-P Gas Hose and quote on....ft.,....size.

Name.....
Company.....
Address.....

smallest kind of space can be utilized, he pointed out. A space 8 by 10 ft. in dimensions, or smaller, can be used.

The front of the Edwards store and, in fact, probably two-thirds of the store is given over to displaying appliances. But for most part the appliances are merely lined up side by side. All of the "heavier" selling is now done in the modern display and kitchen.

We watched C. L. Donaldson, sales and advertising manager of the company, handle a sale with a mother and grown son just to observe how he put the kitchen display to practical use. He started the sale in the front of the store where appliances are abundantly displayed, then gradually maneuvered the prospects to the back of the store where the kitchen is shown for the complete demonstration in its proper setting. There the setting was exactly right for the closing sales argument.

Another use to which the Edwards store puts the modern kitchen is in connection with sales meetings. Staff meetings can be easily and conveniently held in the kitchen. Demonstrations can be made to salesmen, thereby clarifying their knowledge of the various features of the appliances.

Another fine thing about the kitchen is that it serves very well indeed in the group-selling of appliances. In some cases you can sell the complete kitchen. But even if your customer cannot buy but a single appliance she will enjoy seeing a modern kitchen which will help her work toward a goal of complete modernization.

Midwest Section Will Meet In Minneapolis, Oct. 30-31

The annual Fall convention of the Midwest Section, Liquefied Petroleum Gas Association, will be held Oct. 30-31 at the Hotel Nicollet, Minneapolis, according to Charles Russell, Section Chairman.

John Locke, Northwestern Blaugas Co., St. Paul, heads the program committee this year. In addition to industry papers scheduled for presentation, there will be exhibits and a banquet.

Of special interest to those attending is the fact that the home-coming football game between Minnesota and Northwestern universities will be played in Minneapolis on Nov. 1, putting hotel rooms at a premium. Gas men who expect to attend the convention are urged to make reservations far in advance.

Those wishing football tickets should communicate with Francis T. McCahill, Home Gas Co., McKnight Bldg., Minneapolis.

◆ ◆

Butane Truck Service Depot Planned for Corcoran, Calif.

Construction of a modern service depot to serve butane-powered trucks was announced recently by Elmer C. von Glahn, of Corcoran, Calif. The yard of the station will be paved and it will be erected in such a manner that the heaviest loaded trucks can be driven under shelter while taking on fuel.

There will be entrances and exits at both ends of the lot so that trucks may drive straight through the property after being serviced without the necessity of backing up. The station will be operated on a 24-hour basis. Work on the truck depot, which will cost approximately $15,000, is expected to start as soon as necessary materials can be secured.

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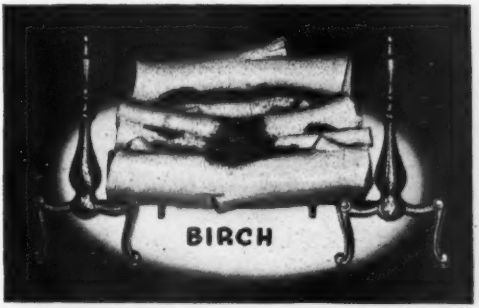


NOT A NOVELTY but a real heatmaker . . . with illuminated shadow spinner for decorative effect when no heat is needed. Plugs in 110 Volt A. C. socket. Is A. G. A. approved for L-P gas. Offered in Birch or Oak, with or without Andirons. Real refractory logs with high efficiency burner. One size only. Write for prices and discounts on HEAT-LITE Logs today.

THE OHIO FOUNDRY & MFG. CO.
Quality Heating Equipment Since 1846
STEUBENVILLE, OHIO

Mojave Desert Bombing Center Gets Butane Central Plant

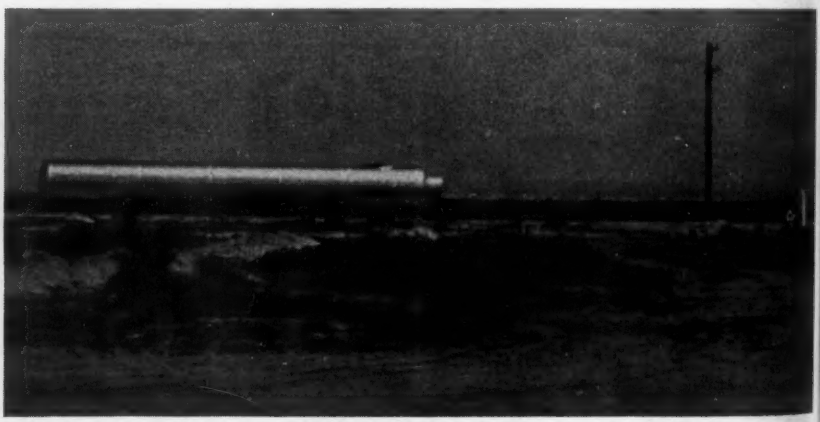
BUTANE is now in service at the United States bombing center located at the famous dry lakes on the Mojave desert near Muroc, Calif. The bombing center is nearing completion and will soon be in use by the army.

The butane system was completed several weeks ago. It provides on a minor scale many modern conveniences for the hundreds of men who will be stationed there in the future. The butane central plant was engineered and constructed by Butane Ltd., of Los Angeles.

The plant has been constructed to operate as a propane system if necessary. Storage tanks consist of two 6600-gal. tanks, 45 ft. long and 60 in. in diameter. Each tank is set on two concrete pillars, 150 ft. from the loading rack. A railroad track runs close to the loading rack, making it possible to haul fuel by tank car if so desired.

The heat exchanger, or vaporizing plant, is set about 50 ft. from the two storage tanks. It is said to be a balanced liquid type designed to maintain a constant liquid level. It is constructed in such a manner that it does not require additional housing and stands in the open at all times.

A compressor unit, located at the loading rack, is used for the transfer of liquid from the tank car



Storage tanks and vaporizing unit shown ready for operation at the United States Army bombing center near Muroc, Calif. Mains will carry butane gas to the living quarters now being completed.

PROPANE TANKS

for Underground and Above-Ground Service

The proper design and fabrication of Tanks for Propane Storage is dependent upon the knowledge and experience of the fabricators. ***Much depends upon their specifications for materials and their choice of procedure for handling them.***

Because Downingtown have had considerable experience in building tanks for this service, we do know the answers to those basic problems. Let us help you with yours.

The Propane Tank shown in photograph was 84" O.D. x 65' 10" long overall, having a propane capacity of 14,825 gals. Weight 49,000 lbs. High tensile steel was used. Tank was inspected and stamped by the Hartford Steam Boiler Inspection and Insurance Company.

DOWNINGTOWN IRON WORKS — Downingtown, Pa.

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

why not DEFENSE FOR YOUR BUSINESS?

With the trend to preparedness, smart business men are "checking up" on their own requirements for defense against competition. You'll be better prepared with Anchorgas. In most every emergency, you'll find Anchor standing by, ready to do their part with a proven L. P. G. Write for complete information today.

Check these reasons why Anchorgas is so popular:

- ☐ Wide distribution of plants brings source of supply nearer you.
- ☐ High quality Butane-Propane make better satisfied customers.
- ☐ Prompt, efficient personalized service.
- ☐ We specialize in the manufacturing and sales of wholesale L. P. G.

ANCHOR
PETROLEUM COMPANY
Atlas Life Bldg. Tulsa, Okla.

★ ★ ★ ★ ★ ★ ★ ★ ★

to the storage tanks. The unit sucks vapor from the storage tanks, forcing it into the tank car. The pressure is thus increased in the tank car, forcing the liquid into storage tanks. When all liquid has been removed from the car, the compressor is reversed, pulling undiluted vapors from the car and replacing all gasses in the storage tank, securing complete delivery of all gas.

Several miles of 8-in. gas mains have been laid throughout the camp site to carry gas to living quarters, administration buildings and kitchens. Butane gas will be used for cooking, space heating and water heating. When the camp is completed, several thousand gallons of butane will be used each week.

◆ ◆

Myers-Thornton, Las Vegas, Nev. Features Automotive Service

Myers-Thornton Gas Co., Las Vegas, Nev., is one of the newer organizations distributing liquefied petroleum gas in that territory, having started in business last Fall. Gay Myers and Byron Thornton are the owners. The latter is also manager of the Clark County Gas Co., which sells appliances.

This firm uses LP-Gas on its own tank truck which transports its bulk supply from Los Angeles to Las Vegas, and automotive service is specially featured at its station in Las Vegas.

The Myers-Thornton company also sells butane for domestic use. At the plant is a 3000-gal. storage tank, a filling rack with municipal scales, and an explosion-proof electric pump.

Among the recent butane installations is a privately owned irrigation pump plant at Whitney, Nev., which has operated very efficiently on its first 350 gals. of fuel used.

N.G.A.A. Appoints New Technical Committee

The personnel of the Technical Committee of the Natural Gasoline Association of America for the 1941-1942 working year was announced recently by Ray E. Miller, of Hanlon-Buchanan, Inc., president of the Association.

H. H. Beeson, vice president of the Sabine Valley Gasoline Co., Shreveport, La., was appointed chairman of the committee, succeeding C. R. Williams, Continental Oil Co., who is on a special assignment for his company in Baltimore, Md. C. E. Wharton, Hanlon-Buchanan, Inc., Gladewater, Texas, was appointed vice chairman. Nineteen other members, besides those already named, formed the committee.

Chief item on the new year's schedule of activities is the continuation of the studies leading to possible standardization of fractional distillation apparatus and procedure for both gases and liquids. Fifteen company laboratories are cooperating.

Other items on this year's program include an investigation of simple methods of determining sulphur compounds in liquefied petroleum gases; setting up a standard table of volume correction factors and completing a new hydrometer method for determining the specific gravity of these gases. The committee is working with other national technical groups to set up a standard table of physical constants which may be revised from time to time as newer information is obtained.

◆ ◆

Threlkeld Super Service Sells LP-Gas in Chariton, Iowa

Threlkeld Super Service, Chariton, Iowa, has entered the LP-Gas business following the purchase of a 3000-gal. propane transport, according to an announcement made recently by Lee Threlkeld, of the company.

TAPPAN means TRADE-UP to L. P. Dealers

It's easy to "trade-up" when you handle the fast-selling TAPPAN Ranges. For TAPPAN offers so many *extra* features that spell *extra* value. The new Tel-U-Set has become a sales-making sensation—and the many other TAPPAN features spell convenience and "Better Living" to housewives everywhere.

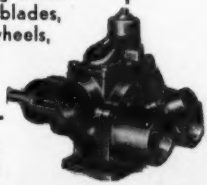
AND - - to make sales still easier, this year's TAPPAN line is backed by the biggest National Advertising Campaign in our history. The Tappan Stove Co., Mansfield, Ohio.

TAPPAN
Gas Range
Increase your L. P. Sales

GREATER VOLUME at lower speed...

with GRANCO BUTANE PUMP

Exclusive Granberg principle... Rotary knuckle joint pivoted in housing without dragging or sliding movement. No scoops, blades, drags, gears, wheels, washers, springs nor rings.



Dealers and Stock in Principal Cities

Greater gallonage per revolution than any other pump of equal size. Lower operating speed, consequently less wear and longer life . . . less turbulence, causing less foaming. Granco rotor doesn't heat when pump is starved or running dry. Write for catalog sheet and complete information and name of dealer nearest you.

FOR EXTRA GOOD PUMPING EQUIPMENT
Granco
GRANBERG EQUIPMENT, INC.
1308 67th STREET
OAKLAND, CALIF.

Bottled Gas Plant is Now Installed in Dupree, S. D.

Harry Silverman, who has been distributing bottled gas in South Dakota for some time, has installed a bottling and bulk plant at Dupree, S. D.

Local bottling will save shipping costs incident to sending empty bottles to distant filling stations and permit lowering the price of fuel to customers.

◆ ◆

Butane Gas Service Co., Inc. Installs 21,000-Gal. Plant

A new bulk plant recently installed for the Butane Gas Service Co., Inc., Mena, Ark., has a capacity of 21,000 gals., with a working pressure of 125 lbs. It is so located that unloading of liquid fuel from tank cars is accomplished by gravity, there being a fall of about 20 ft. A Roney vapor differential compressor and a 3-hp. motor are installed.

The nearby compressor house is equipped with explosion-proof lights and mercuroid switches.

The Butane Gas Service Co. sells gas and appliances in nine Arkansas counties. Several installations have been in the plants of the large mercury mining district southeast of Mena.

The company was started four years ago on small proportions but incorporated in 1938, with W. H. Taylor, president; W. C. Benton, vice president, and Bethel Taylor, secretary-treasurer.

A policy of taking the utmost precautions has been rewarded by the total lack of accidents since going into business.

A photo of a company operation is shown on this page.

◆ ◆

Butane Engineering Co. Installs Two Butane Stations

The Butane Engineering Co., Sacramento, Calif., recently installed two new butane stations in Sacramento.

One of them was for Russell Bros., located on 16th St., and has a capacity of 10,000 gals., stored underground. The other, also a 10,000-gal. underground plant, was for the Capitol Truck Lines at 22nd and Stockton. It is equipped with a Tokheim pump.

The Butane Engineering Co. is building for its own uses a 7400-gal. capacity truck and trailer transport.

A truck load of butane plants being unloaded at the storage yard of Butane Gas Service Co., Inc., Mena, Ark.

• EXCLUSIVE SALES AGENTS FOR:

GENERAL STEEL TANK CO.

• BIRMINGHAM, ALABAMA

OTHER LINES:

• Southern Butane-Propane Systems • Hydro Gas Systems • Smith Liquid Meters • Butane & Propane Gas • Scaife Butane-Propane Cylinders • McNamar Butane-Propane Transports • Etc.

Fabricators of A. S. M. E. Pressure Containers for Butane and Propane Gases

SOUTHERN GAS & EQUIPMENT CO.

Little Rock, Ark. Birmingham, Ala.

"Serving Arkansas, Louisiana, Missouri and the Southeast"

SELL LIGHT for EXTRA PROFITS

JUNIOR OPALITE MODEL

HUMPHREY OPALITES

Once you have seen the abundant, eye-easy light of these modern fixtures, you will quickly appreciate their gas sales potentials for your territory.

Each Junior Opalite has an input rating of 2500 B.t.u. per hour. They are inexpensive yet durably constructed for long service life without attention. Send today for complete information, quantity prices, and helpful sales literature to introduce them in your territory.

JUNIOR OPALITE PENDANT FIXTURE

GENERAL GAS LIGHT CO., Kalamazoo, Mich.

A.G.A. Testing Laboratories Publish New Directory

The July 1, 1941, Directory of Approved Gas Appliances and Listed Accessories of the American Gas Association Testing Laboratories contains a total of 308 pages, 90 pages more than the corresponding issue published a year ago, an increase of more than one-third.

This directory is published as a part of the Testing Laboratories' certification program for the protection and convenience of consumers and others interested in the purchase and sale of gas appliances and accessories that have been judged suitable for consumer use. More than 17,000 basic models of gas appliances for practically every heating use are listed therein.

◆ ◆

Kansas Senate Passes Use Tax Act for Automotive Butane

Pursuant and in compliance with the "Special Fuel Use Tax Law," passed by the Kansas State Legislature, which became effective July 1, Bert E. Mitchner, director of revenue, promulgated and adopted rules and regulations covering the use of automotive fuels other than gasoline, and applying specifically to liquefied petroleum gases, kerosene, distillate, diesel and similar fuels. The amount of the highway automotive tax is three cents per gallon.

Defining these products as "special fuels," the regulations include provisions as follows: Any applicant for a special fuel use license or permit as a user of liquefied gases, must present with his application a certificate approved by Clyde Latchem, State Fire Marshal. This license must be placed in a conspicious place in the office of the user.

Any person selling "special fuel" for a vehicle designed for use upon the public highways, must make sure that the vehicle is registered with Mr. Mitchner, director of revenue, or has a "special fuel" use clearance permit. A sales ticket must be issued to any person who purchases a "special fuel" for propelling a vehicle. This ticket must show the date, the quantity of the fuel purchased, the name and address of the buyer, the place of delivery, and the license and permit number of the user.

If a vehicle propelled by a "special fuel" enters Kansas and has no permit a "special fuel use clearance permit" must be secured and a tax paid per mile driven in the state. The monthly gallonage used must be computed on the volumetric basis.

◆ ◆

New Storage Tank Installed By Elkins Butane Gas Co.

The Elkins Butane Gas Co., Wheaton, Mo., has recently completed the installation of a new 9000-gal. tank to be used in storing butane gas for the company's rapidly increasing number of butane gas customers.

The tank is 64 ft. long, five feet in diameter, and weighs 10 tons. It was constructed in Dallas, Texas, and shipped to Wheaton on two railroad flat cars.

A. E. Elkins, owner of the company, installed a 6000-gal. butane storage tank several months ago, and has been having his butane gas trucked to Wheaton, but the increase in consumption of the gas forced him to install the larger tank, now giving him a storage capacity of 15,000 gals. Since this installation, the gas has been shipped to him in 10,000-gal. railroad tank cars.

A new 1600-gal. storage tank for propane was also recently installed by the company. The smaller propane storage tank formerly used has been taken to Goodman, Mo., to supply customers in that territory.

The
SECURITY
Propane-Butane GAS
Automatic Water Heater

Faster Profits!
Easier Profits!
Greater Profits!

3 MODELS

One of the finest complete lines of AUTOMATIC WATER HEATERS available in the Butane-Propane Gas Field. Backed by over 36 Years Manufacturing—engineered for HEAVY DUTY—styled for beauty—and made in three modern stream-lined models and various sizes.

The SECURITY LINE Is a PROFIT MAKER

MODEL H Deluxe—outstanding in beauty and heavy production. Completely insulated with "fiber-glas." All three Models have latest Automatic Safety Control—patented inner-drum baffling and blue-flamed burner; and are magnificently finished in lustrous white enamel.

CADET—a compact, good looking, sturdy, dependable heater. Insulated and very efficient. Reasonably priced for quick sales.

CHALLENGER—Sturdy, precision built, insulated and built to whip middle-priced competition.

Write Today for Free Catalog and Prices

Manufactured by
SECURITY MFG. CO.
KANSAS CITY, MO.

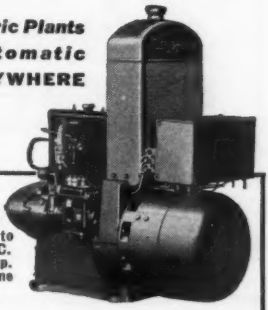
SECURITY
GAS-FIRED PRODUCTS
THE SGP Line
The "Long-Life" LINE

DEALERS!

SALES OPPORTUNITY!

Dealer Franchise Available!

***Kohler Electric Plants supply automatic current* ANYWHERE**



1500 watts—110-volt A.C. Others, 800 up to 10,000 watts, A.C. or D.C. $235 up. Operate on butane or propane.

FULLY automatic — self-starting, self-stopping — easily installed — sturdy, compact, quiet, efficient. Ample current for lights, pump, radio, small tools. In use at camps, on farms, ranches, on shipboard—at many points beyond regular power lines. Also essential for emergency service at hospitals, theaters, etc., when city current fails. Many styles, sizes, prices. *Investigate*—

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ELECTRIC PLANTS
Planned Plumbing and Heating
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Please send facts about Kohler Plants and dealership.

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FOR MORE *SATISFIED* CUSTOMERS

For a More Dependable Source of Supply—A Stable and More Uniform Fuel—A Higher Quality Product—Look into the advantages of Carter Propane and Butane.

Write today for complete information. Address: The Carter Oil Company, Marketing Department, Room 928, National Bank of Tulsa Building, Tulsa, Oklahoma.

DEHYDRATED

Propane and Butane

THE CARTER OIL COMPANY

TULSA, OKLAHOMA

Shipping Points: Seminole, Okla., Stonewall, Okla., St. Elmo, Ill.

WHOLESALE ONLY!

Designed for Maximum Efficiency and Safety in L. P. Gas Systems

Rochester Criterion Gauges incorporate the famous Rochester magnetic principle of operation which assures greater accuracy and positive leak-proof construction. Listed as Standard by Underwriters' Laboratories and distributed by manufacturers of L.P. Gas Systems.

MANUFACTURERS! Specify Criterion Gauges on Your L.P. Gas Systems!

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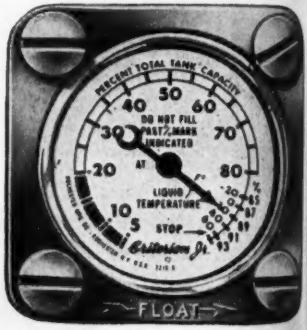


Criterion Gauges are adaptable to both above-ground and underground Systems also in I.C.C. and ASME Cylinders.

ROCHESTER *Criterion* GAUGES

Northwestern Pacific Trains Adopt Butane for Regular Runs

Trains of the Northwestern Pacific railroad, operating between the California towns of Sausalita and Eureka, are now running on butane.

These new units are powered by twin 6-cylinder, 400 hp., internal combustion engines. Coupled to the engines are generators which create electricity for the operation of motors on the driving wheels.

The conversion was made two months ago by the Ransome Co. of Emeryville, Calif. Fuel storage plants with pumping facilities, also installed by Ransome, are located at San Rafael and Eureka. One 12,000-gal. tank is installed at each storage depot. The butane fueled trains operate over the 300 mile system several times daily, but steam is still used for night trains and freights.

◆ ◆

Opelika Strip Plant Will Save Butane Gas

Installation of equipment which will enable the Lone Star Gas Co. and Shamrock Oil & Gas Corp. to preserve the butane gas now going to waste at their Opelika, Texas, recycling plant now is being made, according to Dan Long, superintendent.

The plant now is handling 4500 barrels of distillate daily and is sending it by pipe line to the Gulf station at Big Sandy.

◆ ◆

Detroit Lakes Gas Co. Has Branch at Alexandria, Minn.

According to an announcement made by Steve Fligelman, president of Detroit Lakes Gas Co., that firm has now established a branch office in Alexandria, Minn., to be known as the Alexandria Gas Service, which will sell LP-Gas and appliances to that community. The staff for this office is composed of Carl Ahlf, sales manager, Earl Lord and Philip Hopfner.

Equipment of the branch includes a 15,000-gal. tank reservoir located at the corner of Nokomis street and Fifth Ave., and a large warehouse and garage for trucks. The office will handle Estate stoves, Servel Electrolux gas refrigerators and Ruud automatic gas water heaters. The LP-Gas will be metered, as it is by the parent company, which was founded in Detroit Lakes 11 years ago.

◆ ◆

"Shine Up Home" in Seattle Has Butane Heating Plant

The newly-completed "Shine Up Home" which was formerly a run-down, 30-year-old dwelling before being modernized recently as the high light of the Annual Beautification Campaign sponsored by the Junior Chamber of Commerce, Seattle, Wash., has a modern heating plant designed to burn butane.

The house, which was obtained for the campaign through County Commissioner Russel Fluent, is located at North 61st and Aurora, two blocks north of Woodland Park. For the showing to the public, large flood lights were placed about the property to make the details visible at night. Furnishings of the thoroughly renovated five-room home include the latest type gas range.

◆ ◆

Western Skelgas Service Co. Organized at Lincoln, Neb.

Announcement has been made of the incorporation of the Western Skelgas Service Co., Lincoln, Neb., which will engage in the liquefied petroleum gas business.

Capital stock of the company is $10,000 divided into 1000 shares at $100 each. Incorporators are George L. Hamilton, Verona H. Hamilton, and John H. Comstock.

Automatic Gas Co. Completes Modern Office Building

Evidencing the trend toward modernization among LP-Gas dealers, and comparable to many metropolitan showrooms, the new home of Automatic Gas Co., Inc., was opened to the public in July.

Located on the Dallas highway, just before entering Tyler, Texas, the white stucco and tile building forms one of the company's best advertisements. With a 60-ft. frontage, and 60 ft. in depth, it is two and a half stories high, with the lower floor below the street level which serves as warehouse, service shop and shipping room; the main floor constitutes the showroom and offices, and the upper half story is used at this time as a modern ventilating system. (Photo of the building is shown on this page.)

The showroom is paneled in natural East Texas gum with locust floors. It is large enough to give ample display for all types of ranges, Automatic water heaters, gas systems and any other gas appliances.

The offices, which consist of President H. C. Pittman's office, fuel, credit, sales, and bookkeeping departments, all have ample room for expansion. The walls of the business offices are finished in strained pine paneling and the building throughout is equipped with venetian blinds and the latest type of fluorescent lighting.

The fuel storage plant is located at the rear of the new office and consists of two 6000-gal. storage tanks, one 3000-gal. and one 1000-gal. tanks equipped with the latest type of pumping equipment.

◆ ◆

C. W. Carter Co., Los Angeles, Is Roadmaster Distributor

Charles W. Carter Co., Los Angeles, long established automotive parts house, has been appointed distributor for Roadmaster LP-Gas carburetors and filters, with Paul Davis in charge.

The modern tile and stucco building of Automatic Gas Co., Tyler, Texas, which was completed in July.

REZNOR

Trouble-free Heating for Defense and Civilian Use

GAS fired suspended Reznor Unit Heaters show installation, maintenance, fuel, labor, and space economy. Playing an important part in the preparedness program, Reznor is also filling orders, as promptly as possible, beyond defense requirements. Three types, nine sizes.

REZNOR MANUFACTURING CO.
304 James St. Mercer, Penna.

REZNOR

"GAS HEATERS EXCLUSIVELY SINCE 1888"

INVESTIGATE!

SPRAGUE No. 0

a NEW, SMALL meter designed specifically for the measurement of L-P Gases. Rugged, made of cast iron, and simplified in construction. Delivers at ½" W.C., 60 cu. ft. Propane, 55 cu. ft. Butane.

Write now for Bulletin 23-A

SPRAGUE METER CO. **BRIDGEPORT, CONN.**

DAVENPORT, IOWA • HOUSTON, TEXAS • LOS ANGELES, CAL. • SAN FRANCISCO, CAL. • ST. LOUIS, MO.

General Controls Appoints W. R. Nason to New Position

Announcement is made by General Controls Co., of Glendale, Calif., of the promotion of W. R. Nason, formerly branch manager of the company's Houston, Texas, office, to regional factory representative for the states of Kansas, Arkansas, Oklahoma, Texas and Louisiana. His headquarters will be at the company's branch office at 1100 Cadiz St., Dallas.

As regional factory representative, Mr. Nason will supervise all company activities handled by General Controls' Houston, Dallas, and Kansas City branches.

Robert C. Allen, formerly branch manager at Dallas, has been transferred to the Houston office as branch manager.

◆ ◆

Multnomah Fuel Co. Enters LP-Gas Field

The Multnomah Fuel Co., of Portland, Ore., is now established in the liquefied petroleum gas field in the Northwest. Domestic and industrial installations will be handled. The fuel carried is a butane and propane mixture suitable for the climate in northwestern Oregon.

A franchise has been obtained for the distribution of Hydro-Gas systems in 13 counties and various lines of gas appliances will be marketed in the same territory. (Photo of company bulk plant on this page.)

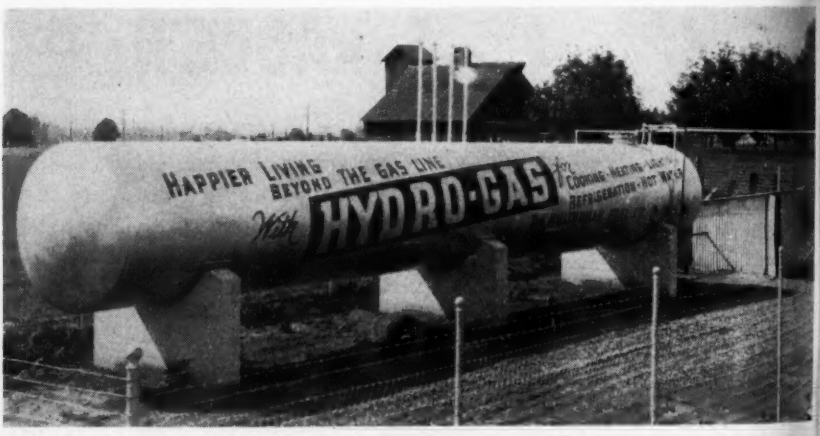
C. A. Marsh is president of the company; Thos. H. Gawley is vice president, and Don H. Slocum is sales manager. Mr. Slocum was originally elected temporary chairman of the "Northwest Liquid Gas Association," which was later merged with the Pacific Coast Section, L.P.G.A.

◆ ◆

Carlson's Sales and Service Is Agency in Marshall, Minn.

Carlson's Sales and Service, of Marshall, Minn., has announced that they have opened an agency for the sale of LP-Gas and appliances in that community.

J. J. Farrell, of Marshall, is in charge of the newly added department which will serve Lyon county.



The new bulk plant of Portland's Multnomah Fuel Co.

MATERIAL ON HAND
for Building Butane Tanks

We can supply 36, 42 and 54 inch diameter 200 lb. W. P. Propane Tanks on short order. Also complete stock of materials is on hand for building Butane Tanks in diameters up to 84 inches. We specialize in truck tanks, bulk storage plants, domestic butane and propane systems.

BUTANE EQUIPMENT CO., INC.

DALLAS, TEXAS

Phone Harwood 2146 — 3301 South Lamar

will show YOU the ADVANTAGES of MOORE'S Circulating and Radiating GAS HEATER

A complete heating system in one compact unit. ● No soot or dirt to ruin furnishings. ● No drafts or cold floors. ● No condensation, moist windows or walls. ● Easily installed—just set the heater where desired—connect to gas and flue.

You Get More in a MOORE
Quality Since 1857

THE MOORE CORPORATION
JOLIET. • • • ILLINOIS

Thomas Truck & Caster Co. Has New Office in Keokuk, Iowa

The Thomas Truck & Caster Co., Keokuk, Iowa, has purchased the three Kellogg-Birge buildings of that city and remodeled them for its new plant. The four-story brick building housing the new offices of the company is located at 4164 Mississippi River and has 50,000 cu. ft. of floor space, more than twice as much as the former office.

The company, organized but four years ago, by J. Faulkner Thomas, president; W. A. Logan, vice president; and L. B. Miller, secretary-treasurer, manufactures floor trucks, industrial trailers, truck casters, wheels and other articles of similar nature.

David F. Thomas, who has represented the company in Cleveland becomes the new sales manager.

With 80 employees, the company has undertaken a considerable quantity of defense business for the Government.

◆ ◆

Brading Gas Service Opens In Waynesville, N. C.

Mr. and Mrs. Stanley F. Brading have sold their interest in the Kingsport (Tenn.) Gas & Electric Co. to R. M. Huntsman who, with C. P. Huntsman started the company in 1940.

Mr. Brading is now located at Waynesville, N. C., where he is operating the Brading Gas Service, Inc., handling gas, appliances and equipment.

◆ ◆

Standard Gas Makes Territorial Changes

Due to the tremendous industrial expansion in New England and the great influx of workers, Standard Gas Equipment Corp. has found it necessary to increase its representation in New England on Vulcan gas cooking equipment, to take care of increasing needs for sales engineering service.

E. B. Duckworth, who has been representing the company in the Middle West for several years has been transferred to the New England office at Boston, where he will be associated with H. O. King, who has covered New England for a number of years.

Peter Larkin will represent Standard Gas in Ohio, lower peninsula of Michigan and parts of other adjoining states. Mr. Larkin was in the Boston office and for the past year has been doing sales work in the New York metropolitan market.

◆ ◆

Boise Gas Light & Coke Co. Changing Over to Butane-Air

The Boise Gas Light & Coke Co., which has served the city of Boise, Idaho with manufactured coal gas of 500 B.t.u.'s for the past 35 years, is changing over to butane-air gas of 1000 B. t. u.'s, according to H. H. Morton, manager.

The company has installed two 15,000-gal. storage tanks and a butane-air plant on their present property. It is the company's plan to sell butane for all purposes, including automotive vehicles, over a territory covering the southern part of Idaho.

◆ ◆

Rufus Scott Dies In Auto Accident

Rufus W. Scott, 48, Des Moines, Iowa, attorney and president and treasurer of the Thermogas Co., Inc., was killed July 23 when his auto left the highway and overturned 16 miles west of Cedar Rapids, Iowa.

Mr. Scott, who lived at Hotel Fort Des Moines, had been a resident of Des Moines 19 years. He became president of the Thermogas Co., distributors of bottled gas, when the firm was reorganized in 1938.

BU-PRO-FIRE

HEATERS and FLOOR FURNACES
FOR L.P. GAS

THE BU-PRO-FIRE line includes vented radiant circulators, radiant circulators, forced circulation models, bath heaters and five different floor furnaces — designed especially for liquefied petroleum gases, and finished in "Lifetime" Porcelain Enamel. Models range in size from 12,000 to 75,000 BTU input. A.G.A. approval is your guarantee of customer satisfaction. Write for catalogs and prices.

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NASHVILLE, TENN.

Distributors and
Industrial Users
Requiring
Butane-Propane

Protect your peak demand by using our guaranteed supply agreement. We deliver wholesale lots only, scheduled to perfectly fit your fluctuating needs.

Clute Petroleum Company
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Tulsa, Okla.

SMITH PUMPS
adopted as
STANDARD EQUIPMENT

Model 200
Direct Electric Drive

By Leading
Butane-Propane Engineers

It is important to you to know that 60% of all Smith Pumps sold are for replacement of other makes which did not prove satisfactory in Butane and Propane Service.

Smith Butane-Propane Pumps are especially designed for this difficult service. A positive displacement balanced gear construction eliminates internal bearing friction. A glycerine sealed packing box prevents escape of hazardous gases.

6 Models for Every Purpose . . .
for Direct Electric Drive
for Truck Mounting

Prompt Delivery
Send for Literature

SMITH PRECISION PRODUCTS CO.
1135 Mission St., South Pasadena, Cal.

SMITH
BUTANE-PROPANE
PUMPS

Meredith N. Bailey, American Meter Co., Passes Away

Meredith N. Bailey, who has been active in the gas industry during the past 30 years, died July 24, after a brief illness at his home in Royersford, Pa. He was born on April 25, 1880, at Cape May, N. J.

Mr. Bailey joined the Keystone Meter Co., of Royersford in 1909 and when the Keystone organization was absorbed by American Meter Co. in 1916, he represented this company with headquarters at the Race St. factory in Philadelphia. He was promoted to assistant manager of the Philadelphia plant in 1935.

◆ ◆

D. R. Abbott Organizes Firm in Chanute, Kan.

The Economy Butane Sales Co., Chanute, Kan., in operation since April, is now distributing the Economy butane-propane systems for the eastern part of Kansas, supplying dealers in that section. Also distributed are various LP-Gas appliances, such as ranges, floor furnaces, space heaters, and water heaters.

The company was started by D. R. Abbott, who has been in the liquefied petroleum gas business since 1937, his first location being at Alma, Kan., with the Desbrow Bros., under the firm name of Desbrow, Abbott & Desbrow. In May, 1939, after dissolving the above partnership, Mr. Abbott took over the management of the Butane Equipment Division of the Western Tank & Road Supply Co. at Wichita, which position he held until opening his present company.

A photo of Mr. Abbott and a reserve stock of tanks is shown below.

◆ ◆

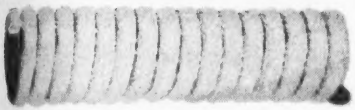
Southern Heater Co., Inc., Is Agent for Safety Wall Outlet

The Southern Heater Co., Inc., New Orleans, has been appointed manufacturer's agent for the "Gas-O-Let" safety wall outlet manufactured by the Imperial Brass Manufacturing Co., of Chicago, according to Emmett A. Smith, president of Southern Heater Co.

The territory covers the states of Louisiana, Mississippi, Arkansas and Tennessee. Architects, contractors and gas dealers will be contacted.

D. R. Abbott and part of the stock of tanks carried by the Economy Butane Sales Co., Chanute, Kan.

PACKING



That brings letters like this—

"We had a pump we were going to discard until we tried your Corkenpak in it and we have used it for three months with excellent results."

—from an LP Gas dealer in Oregon

Order "One pound Corkenpak Style 8"

This amount will pack 5 standard rotary pumps. Price.....$3.00

Corken Pump & Machinery Co
206 E. Grand Oklahoma City

YOUR L.P.G. REQUIREMENTS

Available from Our Dallas and Atlanta Stocks

Distributors for
Bastian-Blessing Co.
L. C. Roney, Inc.
Hackney I. C. C. Cylinders

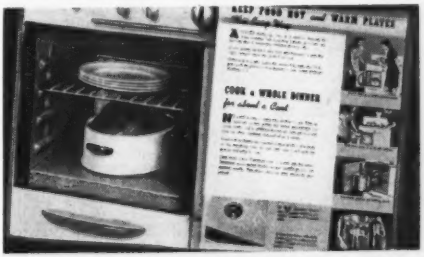
GAS EQUIPMENT CO., INC.
2620 So. Ervay St., Dallas, Texas

GAS EQUIPMENT SUPPLY CO.
1157 W. Peachtree St., Atlanta, Ga.

PUT THE RANGE ITSELF INTO YOUR BRIEF CASE

with the new SGE sales portfolio and catalog!

When you show your prospects this catalog you practically show the RANGE. Giant photos of every important feature tell their story clearly, dramatically!



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18 East 41st Street, New York
Boston, Philadelphia, Baltimore, Chicago, Aurora, Ill., New Orleans, Los Angeles

Motion Advertising Features National Butane Gas System

The butane gas equipment industry has progressed to the motion advertising field with the introduction by the National Butane Gas Co., Memphis, Tenn., of advertising fixtures which demonstrate by motion the percolation action of the National Thermo-Syphon system.

The sign fixture is approximately 18 x 14 in. and creates the illusion of fluid motion by the clever control of vaporizing gas. This gas is contained in glass bulbs and tubes hidden within the sign and the gas is vaporized by heat supplied from electric light bulbs concealed inside. The background on the face of the sign is bright blue, the lettering is in red, yellow and gold, and the fluid action of the liquid and vaporous butane is seen as a medley of white and gray.

The sign creates a fascinating effect. Distributors of the National Thermo-Syphon system expect the sign to attract much new business.

◆ ◆

F. & E. Manufacturing Co. Completes Burner Tests

The F. & E. Manufacturing Co., located at Centerville, Calif., which has been under the active management of Joe Jason for the last three months, has recently completed tests on its newly developed liquefied petroleum gas burners. From the results of these tests conducted under adverse conditions the large size burner was capable of passing 3,600,000 B.t.u.'s and the second size 2,000,000. These burners, using butane as a fuel, are being increasingly used for the dehydration of vegetables and fruits, for water boilers and all jobs where large heat in-puts are required.

The F. & E. Manufacturing Co. specializes in industrial LP-Gas equipment and has supplied the Mare Island Navy Yard with 75 burners and torches for use in the ammunition depot where shells for Uncle Sam's navy are being manufactured.

◆ ◆

C.N.G.A. Listens to Talks On LP-Gas and Europe

"Practical Aspects of Producing Butane and Propane in Natural Gasoline Plants," was the subject of an address by S. F. Magor, of the Superior Oil Co., Los Angeles, at the August 6 meeting in Long Beach of the California Natural Gasoline Association.

The balance of the evening was devoted to a talk by Frank Van Acker, an American engineer, who was in Baku, Russia, for nine months prior to the outbreak of the war and was in Paris at the time of its occupation by Germany. A vivid picture of European conditions, as observed by Mr. Van Acker, was given, supplemented by additional discussion in answer to many questions by those attending.

Mr. Van Acker also described in some detail the installation of a butane plant in Russia he supervised.

◆ ◆

Extension Courses To Open At University of California

"Automotive Transportation Management" is the title of a special course which the University of California extension division will open Tuesday evening, September 16, at 7 o'clock in room 617 of the Hill St. building.

"Petroleum Technology," a special university course which will study the history, origin, geology, and chemistry of petroleum will be opened also by the University of Califorina extension division on the same evening and in the same building.

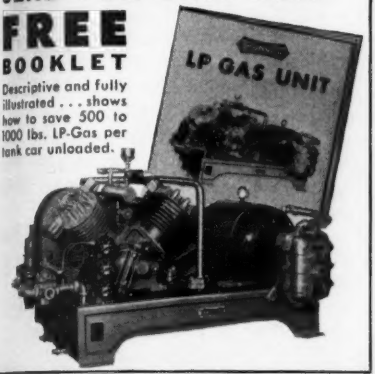
Full information is available on both of these courses.

SEND FOR THIS NEW

FREE

BOOKLET

Descriptive and fully illustrated . . . shows how to save 500 to 1000 lbs. LP-Gas per tank car unloaded.

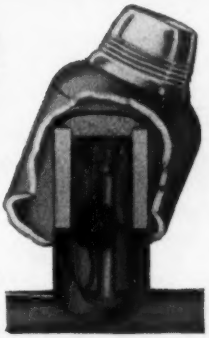


BRUNNER

MANUFACTURING COMPANY
UTICA, N. Y., U. S. A.

AVOID

Expensive
Service
Calls
This
WINTER



For better balanced performance—sell Pioneer—the *only insulated butane system!* All Pioneer Plants conform to ASME code. Write for details of the easy-to-sell, 5-year-guaranteed Pioneer line.

EWING BUTANE GAS CO.
DALLAS, TEXAS

New!

DOUBLE-DUTY RANGE

2-OVEN COMBINATION FOR COAL, WOOD, OIL AND GAS

IT'S the Round Oak *Hiawatha* . . . actually two complete ranges in one! Opens rich rural and suburban markets. Offers new opportunities for greater sales and profits, too.

GAS RANGES—6 Types

Round Oak also offers six types of outstanding gas ranges, designed to meet every need, priced to fit every budget . . . all factory-built and adjusted for tank or bottled gas. Write for complete facts today!

The Cheyenne gas range —a Round Oak leader.

ROUND OAK

of Dowagiac, Mich.

STOVES • RANGES • FURNACES • OIL BURNERS • AIR CONDITIONERS • STOKERS

Round Oak Co., Dowagiac, Mich. Dept. BP-9
Send me the facts on Round Oak ranges today!

Name_____

Address_____

City_____ State_____

W. H. Thomson, Long With Standard Oil, Dies in Spokane

W. H. Thomson, Washington-Idaho Liquid Gas Co., Spokane, Wash., distributor of Standard Oil Co. "Progas" and "Bugas," and well known in the oil industry in Southern California, recently passed away, according to word received from Mrs. Thomson. He was 38 years of age.

Mr. Thomson was with the Standard Oil Co. of California in Los Angeles and surrounding territory for 15 years, before going to the northwest as their "Flamo" specialist, and where he represented that company for nine years. In January of this year he left that position to start the Washington-Idaho Liquid Gas Co. in Spokane.

◆ ◆

Ransome Will Distribute Fisher Regulators

The Ransome Co., of Emeryville, Calif., is now the exclusive distributor of Fisher regulators in Washington, Oregon, Nevada and in California, from Tehachapi north.

This announcement came from J. D. Anderson, secretary of the company, who also states that Bill Ulett has been appointed district manager for the Ransome Co. of Nevada, with headquarters at Reno.

Mr. Anderson also announces that the Sheldon Oil Co., of Suisun, Calif. has taken over the Butane Service Co. and will operate as a Ransome dealer in that area.

◆ ◆

Southern Gas and Equipment Moves Offices in Little Rock

The Southern Gas and Equipment Co. has opened new sales and engineering quarters at 610 Thomas St., Little Rock, Ark. The office is located across the street from the Arkansas Foundry Co., manufacturers of butane gas systems, sold by the Southern Gas and Equipment Co.

The company recently announced the appointment of Mrs. Margaret Mitchell to its staff. Mrs. Mitchell was formerly secretary to J. D. Newcomb, Jr., chief boiler inspector for Arkansas, with offices in the State Capitol Building. She is also secretary of the Arkansas Butane Dealers Association.

The Southern Gas and Equipment Co. represents a number of manufacturers doing business with the LP-Gas industry and maintains a division office in Birmingham, Ala.

◆ ◆

New Firm Extends Service In Montana and Wyoming

The Liquefied Petroleum Gas & Equipment Co., Billings, Mont., organized in January by W. W. Henley and H. S. Orton, is now doing a wholesale and retail business in Montana and northern Wyoming. A modern electric bottling and storage plant for propane and butane is maintained, and a new LP-Gas transport has recently been added to the distribution truck and installation equipment.

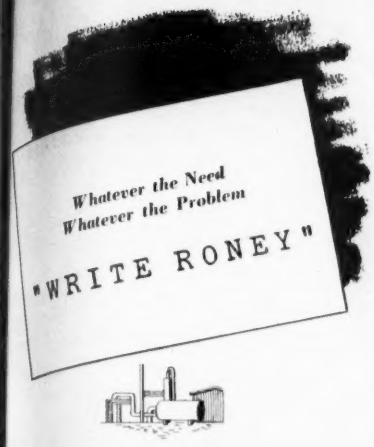
The firm distributes LP-Gas appliances and equipment, and its sales are already nearing the 3000 gals. per week mark, with new installations going in rapidly.

◆ ◆

H. C. Williams Opens Skelgas Appliance Store in Carmi, Ill.

H. C. Williams, of Omaha, Ill., has opened the Carmi Skelgas Store on Walnut street. Mr. Williams is distributor for Skelgas and Skelgas appliances in six southern Illinois counties and has been in the appliance business many years.

The organization carries a complete line of ranges, water heaters, refrigerators and washing machines.



LARGEST AND MOST EXPERIENCED MANUFACTURING ENGINEERS AND JOBBERS OF L. P. G. EQUIPMENT

L. C. RONEY INC.
1140-44 W. 59th ST. - LOS ANGELES, CALIF.

PROVED FOR
LIQUIFIED PETROLEUM GASES
BEFORE YOU BUY, COMPARE THESE
10 OUTSTANDING VALUES

Type K-3B

1. Quiet AC Solenoids.
2. Two-wire current failure principle.
3. Designed to eliminate magnetic sticking.
4. Rotable conduit connection.
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6. Bonnet construction for accessibility.
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Distributors and Stocks in All Principal Cities

. . . . looks easy, and it IS . . . . IF YOU KNOW HOW!

Successful marketing of butane and propane is like "lifting 'em" with a fly rod. You have to know where to go—and what to do when you get there!

That's why the advantage is on your side when you market SKELLYFUEL (butane and propane). The Skelly Oil Company has learned where to go and what to do when you get there. You start with the advantage of this experience. We cooperate with you. We do not operate as your competitor.

Skellyfuel
BUTANE PROPANE

Write—Phone—Wire

SKELLY OIL COMPANY
Tulsa, Okla. Kansas City, Mo.

New Technical Bulletins Will Be Issued by C.N.G.A.

With W. C. Dayhuff, Standard Oil Co. of California, accepting the gavel as newly elected president of the California Natural Gasoline Association for the 1941-42 term, the annual board of directors meeting of that group was held in Los Angeles recently to hear reports of work accomplished during the year just closed and to formulate plans for the ensuing year. The retiring president was L. V. Cassaday, Lomita Gasoline Co. (See photo on this page.)

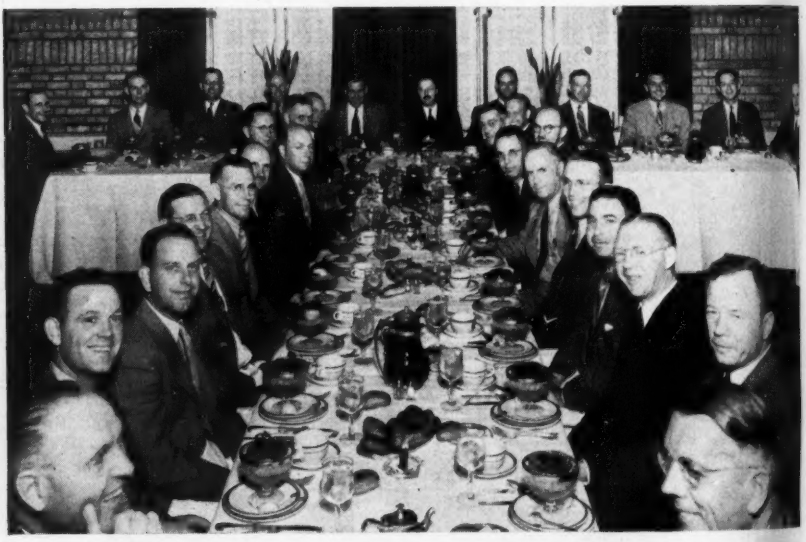
At the directors meeting it was stated that two valuable contributions were made to the industry's technical advance during the past year through the publication of the two bulletins, "Physical Constants of Natural Gas and Gasoline" and "Tentative Standard Procedure for the Determination of the Corrected Hourly Gas Coefficient (C') Used in the Measurement of Natural Gas by Orifice Meter."

J. B. Taylor, newly appointed chairman, of the General Technical Committee, stated that the ensuing year will likely see the publication of new bulletins on the subjects of fractional analysis of natural gas and gasoline, gas engine and compressor operation, and truck gaging.

◆ ◆

A & B Butane Co. To Sell LP-Gas in Carnegie, Okla.

The A & B Butane Co., with headquarters in Carnegie, Okla., has been founded by Andy Loar and Burl Dukes. Mr. Loar, who has been in the business before, was recently joined by Mr. Dukes to form the partnership. The company will sell LP-Gas ranges and other appliances in the Carnegie territory.



The first meeting of the 1941-42 board of directors of the California Natural Gasoline Association. The new president, W. C. Dayhuff, Standard Oil Co. of California, is in the exact center at the head table, with the retiring president, L. V. Cassaday, Lomita Gasoline Co., on his right.

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Wings of Service!

A symbol of quality, economy, efficiency! ALGAS BUTANE CARBURETION has met requirements of leading contract haulers, power plant operators, ranchers, mine operators and others. Join the ranks of enthusiasts who get economy and power with ALGAS.

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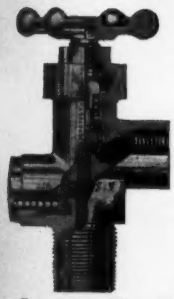

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KEROTEST
PROPANE-BUTANE CYLINDER VALVE

For controlling Propane-Butane gases *accurately*, depend on the Kerotest Propane-Butane Cylinder Valve. It's *safe* and extra-durable.

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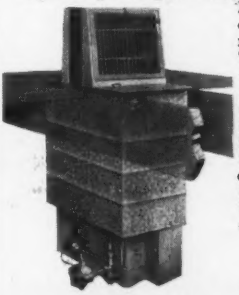
★ Far-sighted LPG dealers handle PACIFIC heating appliances exclusively. They know that PACIFIC offers a complete line especially designed for use with bottled gas by engineers who understand LPG requirements thoroughly. They know, too, that this is important for their own success and their customer's complete satisfaction. A few desirable territories are open. LPG dealers who are looking ahead are invited to write for complete details NOW!



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Oklahoma Fire Marshal Assumes Industry Regulation

Another progressive step in the interest of the public, LP-Gas executives and employes, was taken at a hearing in Oklahoma City, July 31, on tentative rules and regulations for securing additional safety and efficiency in handling and installing liquefied petroleum gas, equipment and appliances.

The hearing was held pursuant to a new law passed by the Oklahoma Legislature, effective August 23, relating to the subject, and repealing the old law which conferred jurisdiction on the Oklahoma Corporation Commission. The latter body willingly released jurisdiction and asked the legislature to turn regulation over to the State fire marshal.

About 100 LP-Gas men, representing every branch of the industry, attended the hearing conducted by Carl C. Garner, state fire marshal. Mr. Garner revealed that final regulations will carry provisions for cooperation with cities and towns in providing free parking spaces outside of fire zones for loaded LP-Gas delivery or transport trucks. They also will require dealers to submit to the State fire marshal's office plans and specifications for all installations of systems in school houses and other public buildings and will prohibit laying pipes under such buildings except where such action is necessary.

State Fire Marshal Garner, state administrator, will be assisted by Jim Archer, chief inspector; Alexander Oliphant, Jr., inspector, and Roy Templeton, chief advisor to the administrator. A general hearing for discussion of final rules and regulations will be held in Oklahoma City about September 3.

The Oklahoma Corporation Commission has been relieved of jurisdiction for enforcing laws governing the LP-Gas industry. Instead, State Fire Marshal Carl C. Garner (left) will be the State administrator, while James Archer (center) will be the chief inspector, and Roy Templeton (right) will be chief adviser to the administrator. An assistant inspector, not shown here, is Alexander Oliphant.

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Sell health and cleanliness to your customers this summer through increased use of hot water. Gain satisfied customers, appliance sales and most important, GREATER GAS LOAD for summer months. There's an LP-Gas Continental water heater for "every purse and purpose."

★ A.G.A. Approved.

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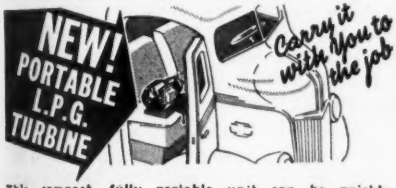

This compact, fully portable unit can be quickly moved from truck to truck . . . enabling you to make speedier tank-truck deliveries.

An ECONOMICAL turbine pump that CUTS COSTS . . . withstands the ROUGHEST USAGE . . . fills 100 lb. cylinder in av. of SIX MINUTES . . . switch and motor EXPLOSION PROOF . . . WIDE PRESSURE RANGE, up to 85 lbs. . . . optional CARRYING HANDLE . . . LOW cost . . . HIGH performance.

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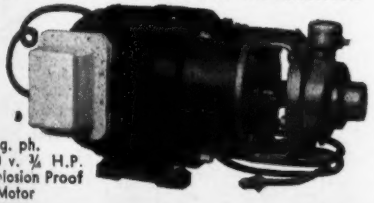

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Vitally important to every retail marketer of these products, is a dependable and reliable source of supply. Such assurance is yours when you buy Philgas Butane or Propane. Without qualification, Philgas has the most complete production, storage and shipping facilities in the industry. Philgas service gives you high-quality products produced according to rigid specifications plus deliveries when, where, and as you want them.

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DIVISION
PHILLIPS PETROLEUM COMPANY

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CHICAGO — AMARILLO
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THE NATION'S LARGEST MARKETER OF LIQUEFIED PETROLEUM GASES

California LP-Gas Safety Orders Up For Final Hearing

The Industrial Accident Commission of the State of California will hold meetings in Los Angeles and San Francisco during the month of September to hear final suggestions concerning proposed LP-Gas safety orders. The commissioners are T. A. Reardon, Harold B. Jeffery and George C. Kidwell, chairman. Past meetings have been presided over by C. H. Fry.

The orders to be discussed were prepared by the Commission and a technical committee in Los Angeles and San Francisco during the past year, resulting in the publication of the complete "Propane Liquefied Petroleum Gases Safety Orders," copies of which have been sent members of the industry.

The September meetings will be held in the auditorium of the State Building, Civic Center, Los Angeles, on Sept. 10, at 10 a.m., and in the examination room, State Building, Civic Center, San Francisco on Sept. 15, at 10 a.m. These meetings will be open to the public and suggestions will be received for changes in the proposed code as it now stands.

◆ ◆

Pawtucket, R. I., Tea Room Uses City Gas, Not Propane

Through a mistake in identifications of photographs, there appeared in the July issue of BUTANE-PROPANE *News* two cuts of "The Little Red Hen Tea Room" in Pawtucket, R. I., which were captioned as indicating the use of propane for cooking on the commercial ranges of the Detroit-Michigan Stove Co., installed therein.

Actually, this is a city gas installation, made by the Blackstone Valley Gas & Electric Co., and when that fact was brought to the attention of E. J. Shermire, author of the article and sales manager of the stove manufacturing company, he immediately asked that an explanation be made to BUTANE-PROPANE *News* readers.

While the photographs had no direct relation to the discussion in the article of commercial cooking with LP-Gas, they were unintentionally misleading, and Mr. Shermire is anxious to have the error corrected.

◆ ◆

Cleveland Co-Operative Stove Increases Foundry Capacity

Because of the rapid increase in demand for its product, a large foundry has just been leased by The Cleveland Co-Operative Stove Co., Cleveland manufacturers of Grand kitchen ranges for natural, manufactured and liquefied petroleum gases, according to James Mitchell, president of the company.

The new foundry, with its 50 molders, will add from 20% to 25% to Grand's previous foundry capacity, and will be placed in full operation as soon as extensive remodeling is completed and new machinery and equipment have been installed.

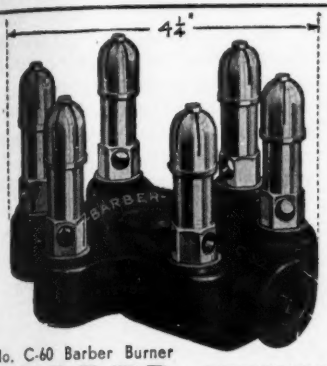
This addition to foundry capacity comes during the company's 75th anniversary celebration—the best year in sales volume during its history.

◆ ◆

H. B. Cleveland Will Distribute Mutual Liquid Gas Co. Products

H. B. Cleveland, San Francisco, distributor of LP-Gas equipment, is now the exclusive distributor of the Mutual line of streamline LP-Gas furnaces and torches.

J. S. Fagan, of Mutual Liquid Gas Co., Inglewood, Calif., states that Mr. Cleveland took on the distributorship late in June and that he has had fine response throughout his territory, which includes all of northern California from Fresno north and the states of Oregon and Washington.



No. C-60 Barber Burner

BARBER APPLIANCE BURNERS

The burner is the heart of the appliance. Barber Burner Units are correctly designed, with the proper jets, to fit the individual appliance, and give complete combustion on Butane-Propane Gas. Appliance makers and fuel distributors assure better service and economy for their customers by recommending the use of Barber Burners. Submit your burner problems to us. Catalog of complete line on request.

THE BARBER GAS BURNER CO.
3704 Superior Ave. Cleveland, Ohio

DREAMS COME TRUE!

PROFIT !
PLEASURE !
PRESTIGE !

and all are his because he is an exclusive distributor of the most distinctive butane gas system the Industry has produced—the popular patented

NATIONAL Thermo-Syphon SYSTEM

"The Butane Percolator"

Owned, manufactured and distributed through progressive dealerships by

National Butane Gas Co.
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WATER HEATERS

Hotstream offers a complete line of heaters specially designed for safe, economical operation with Butane and Propane. Here are 2 good reasons for handling them . . .

★*PROFITABLE SALES.* You can boost your profits by selling Hotstream Water Heaters.

★*LOAD BUILDER.* If your bottled gas customers do not have water heaters, you are losing out on volume. Water heaters are good load builders.

For complete information, prices and catalog, write to Hotstream or, in the South, to these representatives:

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3200 Main St., Dallas, Texas
W. G. BAKER, 820 Carondelet Street, New Orleans, La.
R. O. FOARD, JR., 205 Walton Building, Atlanta, Georgia

THE HOTSTREAM HEATER COMPANY
8007 Grand Avenue • Cleveland, Ohio

LP-Gas Plant to Open Soon Near Decorah, Iowa

Announcement was recently made in Decorah, Iowa, on the authority of the Cities Service Co., that a bottled gas plant would soon be established near that city. The plant is to be located at the junction of highways 9 and 52, just west of the city limits, and will consist of a bottling plant and storage tanks.

The new undertaking is the outgrowth of a business established several years ago by J. C. McArthur.

◆ ◆

S. H. Elgin, Hickman Mills, Mo., Dies in Airplane Crash

Samuel H. Elgin, 34, partner of Homer Braswell of the Hydro Butane Gas Co., Hickman Mills, Mo., until last May, was killed in an airplane crash July 16, when the plane he was piloting went into a spin soon after taking off from Hickman Mills.

Thomas Garland Braswell, 32, close friend of Mr. Elgin and brother of his former partner, was killed with him in the crash. A few seconds before the crash the men had waved goodby to their families who watched the plane spin and crash near the main intersection of the town.

Mr. Elgin and Homer Braswell installed many of the first butane gas systems in the state of Missouri, and the present company, under Mr. Braswell's direction is servicing six counties near Kansas City. Gas is brought in by tank cars and transport trucks for the Hydro Butane Gas Co., which handles butane and propane. Three delivery trucks are now being used. The company also operates a propane bottling plant for bottled gas dealers in Missouri and Kansas.

(See photo on this page of Mr. Elgin and company equipment.)

◆ ◆

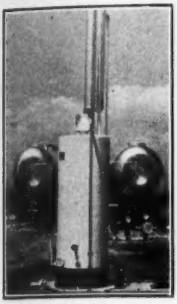
Russell Cheves Incorporates Butane Firm in Flagstaff, Ariz.

Articles of incorporation were filed recently for the Russell Cheves Butane Service, Inc., of Flagstaff, Ariz. Incorporators were Mr. Cheves, Mrs. Lucille M. Cheves, E. A. McNamara and J. W. Etter.

S. H. Elgin (left), killed in an airplane accident, shown beside the 3000-gal. transport tank of the Hydro Butane Gas Co., Hickman Mills, Mo., a firm in which he was interested until shortly before his death.

Natural Gas Shortage!

Defense demands indicate a shortage of natural gas. Many industrial plants may face shutdowns due to this shortage. A butane gas stand-by plant is the answer to this problem.



BUTANE stand-by plants, as shown, can be constructed by Butane, Ltd., in your area.

DEALERS, canvass the industrial plants in your territory. You may participate in the profits from these jobs. We will engineer or install any Central Plant or Stand-by dispensing system for you, or we will engineer, install, and bid the job direct, paying you a profit, plus the future gas load.

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Plumber's Furnace

OPENS NEW MARKETS TO LP-GAS MEN

MUTUAL'S Streamline Plumber's Furnace features: non-warping head; adjustable burner tube and orifice; removable shield—conical or straight. Cylinders equipped with relief, vapor and fill, and 10% valves. Cylinders in three sizes.

Plumbers Furnace with Shield

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HIGH SPEED LOW TEMPERATURE OVEN BURNERS

another outstanding ★ WEDGEWOOD feature

WEDGEWOOD LPG Range equipped with wood or coal firebox.

Saves food, fuel, time and money

WEDGEWOOD

THE MODERN RANGE

James Graham Mfg. Co.

Los Angeles, San Francisco, Newark California • Portland, Oregon

McMinnville, Ore. High School Student Wins Servel Contest

One of its students having been named a regional winner in a nation-wide high school foods project, the McMinnville High School, of McMinnville, Oregon, has received from Servel, Inc., of Evansville, Ind., a Servel Electrolux refrigerator to be operated on bottled gas for its home economics laboratory. Heretofore, only electric equipment was used in the laboratory as there are no gas mains in the town.

The student, 16-year-old Norma Youngberg, received from Servel, sponsors of the project for the second consecutive year, a check for $100 as her award. Robert P. Haskins, Servel district sales manager, made the presentation. (See photo on this page.)

Miss Norma Youngberg (center), of the McMinnville (Ore.) high school, is shown receiving a check for $100 from Robert P. Haskin, Servel district sales manager, for having been named a regional winner in Servel's second high school food project. Miss Irma Nisbet, her teacher, looks on.

The 1940 Oregon state winner in the project was also a student of the McMinnville High School.

The foods project has as its main objective preparation of the youth of the nation for their future jobs of homemakers of the nation. It aims to promote practical knowledge among high school youth of the role which modern gas refrigeration plays in food purchasing, preservation and preparation. The project is conducted by Servel's home economics department of which Martha Jane Tupper is director.

◆ ◆

LP-Gas Distributors Ruled Public Utilities In Texas

Distributors of liquefied gas are "gas utilities" within the meaning of the law which places a gross receipts tax on gas utilities, according to a ruling by the office of Attorney General Gerald Mann, of the State of Texas.

The ruling was requested by Comptroller George Sheppard. The tax on utilities is graduated in accordance with the size of the municipalities served.

As a result of the ruling the question immediately was raised, whether such distributors' rates would be subject to regulation as are the rates of natural gas distribution companies.

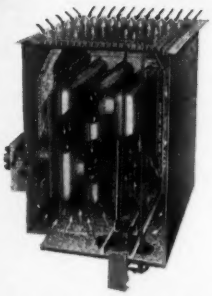
The attorney general's opinion was based on two court opinions:

The first decision held that the term "any gas plant" in the law was adequate to include "both natural and artificial gas."

The second opinion held that a gas plant was "any method or manner whereby the business of selling and distributing gas is carried on within any incorporated city or town."

Both of these decisions were handed down by the court of civil appeals at Austin in recent years.

HERE'S YOUR MODERN ANSWER



Peerless Gas-Fired Floor Furnaces in five sizes. With a 100% safety pilot, A. G. A. approved for liquefied petroleum gases. Order today.

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For Safety and Economy

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The ACCEPTED standard odorant for liquefied petroleum gases.

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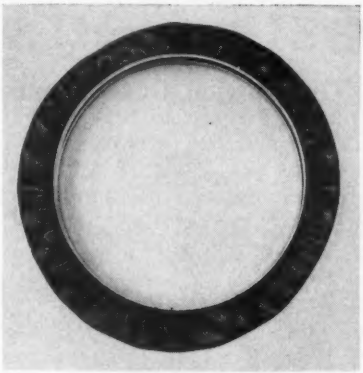

PREVENT FAST METERS

Equip with Vulcan Diaphragms for safe, dependable, uniformly accurate measurements of LPG gases.

Vulcan Diaphragms are non-leather and need no oiling . . . therefore there is no bleaching or shrinking.

Encourage the use of metered gas in the LPG industry by using Vulcan Diaphragms.

Made entirely from domestic materials.

Diaphragms for meters and service and appliance regulators.

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Brooklyn, New York

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NON-LEATHER
LPG
METER and REGULATOR
DIAPHRAGMS

ANSWERS

To Chapter 3
The Bottled Gas Manual

Here are the answers to the questions on Page 58 and which refer to problems in Chapter 3 of THE BOTTLED GAS MANUAL:

1. Heat is a form of molecular activity.
2. Temperature is the level of heat.
3. A B.t.u. is the amount of heat required to raise the temperature of 1 lb. of water from 62° to 63°F.
4. Conduction, convection, radiation.
5. Internal conduction is the transference of heat between two parts of the same body.
6. $4 \times 5 \times .29 = 5.8$ B.t.u. per hr.
7. Rule 2, *Laws of Radiation.*
   Let the initial amount of energy being received be represented by 1. Then the ultimate amount of energy will be $2 \times 1 = 2$. The initial distance from the broiler is 3. It's square is 9. The ultimate distance from the broiler is unknown. Putting the rule into words:

$$\frac{\text{The initial heat received}}{\text{The ultimate heat desired}} = \frac{\text{The square of the ultimate distance}}{\text{The square of the initial distance.}}$$

$$\frac{h}{H} = \frac{D^2}{d^2}$$

Substituting values:

$$\frac{1}{2} = \frac{D^2}{2} \qquad 2D^2 = 9 \qquad D^2 = 4.5$$

$$D = \sqrt{4.5} \qquad D = 2.12 \text{ in.}$$

8. Specific heat of soft steel is .1165. $1000 \times 1000 \times .1165 =$ 116,500 B.t.u.
9. Melting point of lead is 621°F. Initial temperature is 80°F. Number of degrees to raise temperature is 541°F.
   Specific heat of lead is .0306.
   $500 \times .0306 \times 541 = 8227.3$ B.t.u. required to bring lead to melting point.
   $500 \times 9.67 = 4835$ B.t.u. required to melt lead.
   Total 13,112.3 B.t.u.'s required.
10.

$$\frac{V}{V_1} = \frac{T}{T_1} \qquad \frac{500}{V_1} = \frac{90+459.72}{590+459.72}$$

$$\frac{500}{V_1} = \frac{549.72}{1049.72} \qquad 549.72V_1 = 524{,}860$$

$$V_1 = 955 \text{ cu. ft.}$$

◆ ◆

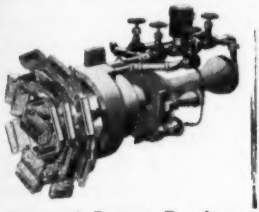
Weis Butane Gas Co. Holds Meeting in West Memphis, Ark.

The Weis Butane Gas Co., of West Memphis, Ark., held a sales meeting of its organization, in West Memphis on July 28. The meeting was attended by representatives of the company from Blytheville, Wheatley, Forest City, Wynne, Mariana and Helena, Ark.

Speakers at the meeting were Lacy Whitten, of the Southern Steel Co., San Antonia, Texas, who gave a talk and demonstration on the Hydrogas system, and Frank P. DeLarzelere, president of the Southern Gas and Equipment Co., Little Rock, who spoke on "Salesmanship." Clyde Lewis of the Bryant Heater Co., Jack McKinney of the Dearborn Stove Co., and W. N. Neece, of the Big-D-Tex Co., Dallas, Texas, were among those demonstrating equipment at the meeting. Bill Green and Lewis Brown, of the Southern Gas and Equipment Co., also attended.

F & E

Presents
Its "Fast and Efficient"
LJ20 Liquid Butane Burner



Pat. and Patent Pending
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For full details of our complete line of L.P.G. Burners and Torches write to

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McNAMAR Tanks

- TRUCK TANKS
- TRANSPORTS
- SKID TANKS
- STORAGE TANKS
- UNDERGROUND SYSTEMS

All tanks ASME U-69, inspected by Ocean Accident & Guarantee Corp., Ltd.

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BOILER AND TANK COMPANY
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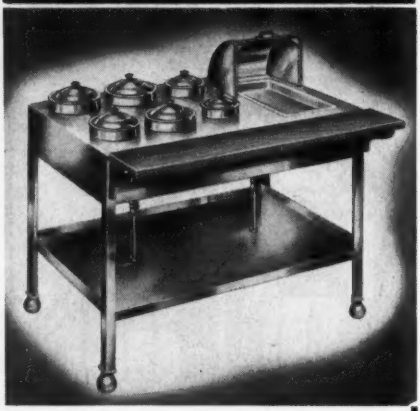

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Uregas Corp. Founded In Moberly, Mo.

A new LP-Gas company to be known as the Uregas Corp. was founded last month in Moberly, Mo. The gas is being trucked to the new firm from Salem, Ill., and is being packaged in 20-lb. containers for "cash-and-carry" trade and in 100-lb. cylinders for general trade at the new plant on Highway 24, just north of Moberly. Capacity of the company's storage plant is 8500 gals.

Capital stock of the company is owned equally by four incorporators. W. I. Westlake, of Huntsville, Mo., is president; F. K. Westlake, of Shelbina, Mo., son of the former, is vice president; K. H. Dickson is general manager, and his wife, Mrs. K. H. Dickson, is secretary. Mr. and Mrs. Dickson came to Moberly recently from Kansas City where Mr. Dickson was formerly associated with Coleman Bottled Gas, Inc.

The corporation will operate in northeastern Missouri and at present is shipping LP-Gas to the nearby communities of Salisbury and Kirksville. A trailer will be equipped with ranges for home demonstrations.

◆ ◆

Ash Fork, Ariz., Bulk Plant Will Serve Grand Canyon

Russel Cheves, wholesaler for butane gas, Flagstaff, Ariz., has announced that he is installing a butane bulk plant at Ash Fork, Ariz. The plant will be located just south of the Standard Oil and Texaco bulk plants, and will have a capacity of 15,000 gals.

The new plant will service Ash Fork, Seligman, Williams, Chino Valley, Flagstaff and Grand Canyon. Ash Fork was chosen with an eye to the fact that it is centrally located, making prompt and efficient service easier in these towns.

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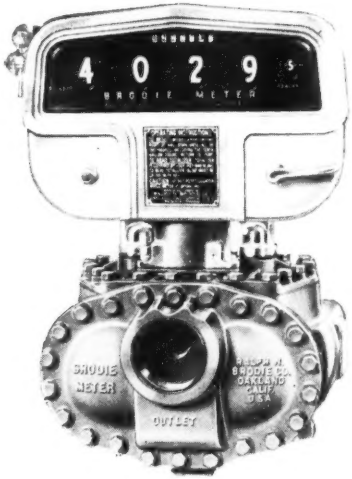

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